

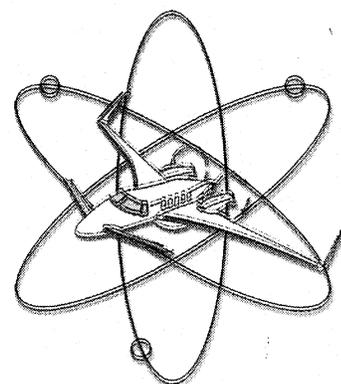
U.S. DEPARTMENT OF ENERGY

**OFFICE OF AVIATION
MANAGEMENT**

**COMPREHENSIVE
AVIATION PROGRAM
STUDY (CAPS)**

**PHASE ONE
FINAL REPORT**

December 1999



COMPREHENSIVE AVIATION PROGRAM STUDY

PHASE ONE

REPORT

December 22, 1999

Executive Summary

The Comprehensive Aviation Program Study (CAPS) Phase One Team has prepared this report to summarize the results of the July 28, 1999, Comprehensive Aviation Program Study Survey. The survey objectives were to (1) identify current and future customer requirements relative to aviation support, (2) validate the types of aviation operations required to support the missions of the Department, and (3) produce a report to the Senior Aviation Management Official that verifies the type of aircraft support required to accomplish the Department's missions. In addition, the CAPS Phase One Team was tasked with providing data to assist the CAPS Phase Two Team to develop Performance Work Statements. The CAPS One Team leader is a member of the Office of Aviation Management (OAM) and, as such, this report fulfills one of the major responsibilities of the OAM, to conduct studies, audits, assessments, and reviews of program elements and activities to ensure cost-efficiency and effectiveness. Specifically, OAM was directed to verify aviation mission requirements and conduct appropriate Office of Management and Budget (OMB) Circular A-76 studies to determine the types of aviation assets or services required to carry out the DOE's missions as described in the July 12, 1999 Office of Management and Administration Director's memorandum.

The DOE aviation program is predicted to fly in excess of 12,000 flight hours in fiscal year (FY) 2000, which is consistent with the previous two fiscal years. Aircraft utilization is predicted to increase approximately 10 percent per annum over the next three to five years, primarily due to an increase in aircraft support necessary for the Stockpile Stewardship program, Nuclear Nonproliferation research and development activities, and aircraft support necessary within the Power Marketing Administrations. Aircraft services are provided by multiple commercial vendors and government-owned and contractor-operated and government-owned and government-operated aircraft located throughout the United States.

The CAPS Phase One Team determined that the total cost of aviation services within the Department of Energy (DOE) amounted to less than ½ of 1 percent of the overall budget of the Department. However, as discussed later in the Report, without proper management controls, aviation activities will carry risks, and from that perspective, the aviation program demands attention at the highest levels of management.

(1) The following DOE programs were identified as having current and future requirements relative to aviation support: **National Security Programs, Energy Resource Programs, Environmental Quality Programs, Science Programs, and Departmental Support Programs.**

(2) The following aircraft operations were validated to support DOE customers: **Transportation, Aerial Patrols, Aerial Surveys, Aerial Photography, Aerial Applications, Rotorcraft (Helicopter) External Load Operations, and Research and Development.**

(3) The CAPS Phase One Team reached the following additional conclusions based on the data received from the program and operations offices and the National Laboratories:

- ▶ Future customer requirements over the next three to five years are realistic and will require additional and/or more capable aircraft than the Department currently owns.
- ▶ The data in the CUSTOMER SUMMARY TABLES can be used by the CAPS Phase Two Team in the development of any required Performance Work Statements.

Executive Summary (continued)

- ▶ There is a need within this report to clarify certain terms and conditions so that management, throughout the Department, can better communicate their programmatic needs for validating aircraft.
- ▶ There is a need for a common Internet-based charter aircraft database.

The CAPS Phase One Team makes the following suggestions based on the analysis of the data:

- ▶ The CAPS Phase Two Team should conduct a complete cost analysis of the Science Program's Air Chemistry Program and Atmospheric Radiation Measurements aircraft operation.
- ▶ The CAPS Phase Two Team should conduct a complete cost analysis of the Weapons Maintenance Program's aircraft operation, and
- ▶ The CAPS Phase Two Team should conduct a fleet modernization study of the aircraft used by the National Security Programs and the Environmental Management's Office of Safeguards and Security to determine if the aircraft can meet future programmatic needs.
- ▶ The CAPS Phase Two Team should conduct a cost analysis of the National Security, Research and Development program to determine if additional aerial platforms or aircraft are required to economically meet current and future program demands.

In the best judgement of the Team, the CAPS Phase One Report's conclusions and suggestions will assist the Senior Aviation Management Official in making decisions that lead to improving the current and future aviation program.



Randy Stewart
CAPS Phase One Team Leader

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Introduction

On May 26, 1999, the OAM announced its plan to conduct a Department-wide aviation study in collaboration with the Program and Operations offices to carry out MA-10's program responsibilities conduct studies, audits and reviews. This is the first Federal executive-level agency study of its kind. As planned, the Comprehensive Aviation Program Study (CAPS) consists of two phases. This CAPS Phase One Report is for the Senior Aviation Management Official to document the results of the study. The CAPS Phase One Team conducted interviews and collected data and documentation for the purposes of identifying all of the customers within the Department whose current and future programs require aircraft support. In addition, the CAPS Phase One data was used to validate the types of aircraft operations required to support the customers' needs. This study excludes program requirements for scheduled commercial air carriers such as American Airlines, United Airlines, etc. Customers, as referred to here, are the programs and offices supported by the OAM.

The CAPS Phase Two study, also conducted by OAM, will consist of an appropriate cost analysis of the recurring aviation activities within the Department using the OMB Circular A-76 process. This Phase One report makes suggestions to assist the Phase Two Team in prioritizing their approach and scope.

DOE Aviation History

The Department of Energy and its predecessor organizations have utilized aircraft since the Manhattan Project for transportation, security, scientific atmospheric research, and classified research and development of sensors and equipment. In 1994, DOE owned and operated aircraft flew in excess of 18,000 flight hours at a cost of \$33,280,609. However, since nuclear weapons testing ended in 1992, the Department's program requirements for aviation support has been reduced. The DOE aircraft fleet has steadily declined from a peak of 44 aircraft during the late 1980s to 29 aircraft in 1998 and from a reported 22,000 flight hours to 11,100 flight hours, respectively. In 1998, the reported cost of aviation activities within the Department was \$18,453,442.

From 1944 until 1998, the Department experienced 25 accidents and 38 fatalities. Using DOE historical records and a DOE Environment, Safety and Health study conducted in 1994, the Department had flown an estimated 450,000 hours between 1944 and 1994. Since that time, the Department has flown an additional 44,000 flight hours for a total of 494,000 flight hours. This equates to a fatal accident rate of 7.9 deaths per 100,000 flight hours. When compared with the civil aviation industry, which fly the same types of aircraft, conducts similar operations, and uses the same standard of measure, DOE's historical safety record was unacceptable. However, since

DOE Aviation History (continued)

1993, DOE has made significant improvements in its safety record due to stricter adherence to Federal Aviation Administration safety regulations, a centralized approach to aviation safety policy development within the Department, and better management controls¹.

Methodology

The CAPS Phase One Team sent out surveys that asked more than 30 questions about aircraft and program requirements. The surveys went to 140 identified personnel within the various Program, Operations, and Operation Offices and the National Laboratories. Frequently, copies of the survey went to several different personnel within the same organization who were identified as having different program responsibilities. This methodology enabled the OAM to identify numerous programs and customers who require aircraft services.

The survey response rate was 80 percent, which is quite high for surveys. Thirteen program-level offices and 27 operations offices and laboratories that require aircraft services to support DOE programs were identified. Once the surveys were reviewed, the CAPS Phase One Team determined that follow-up questions and site visits were needed to clarify information received from the original surveys.

The survey data was then compiled and reviewed by the CAPS Phase One Team. The information was summarized in a set of tables (See CUSTOMER SUMMARY TABLES) for each program, operations office, and laboratory that details the program(s) and aircraft operations for each organization.

During the review of data from the survey and follow-up questions, information on operating costs was provided to the CAPS Phase One Team by many operations locations. Although it was not a requirement for CAPS Phase One to accomplish an in-depth cost analysis, OMB A-76 required the Phase One Team to identify those organizations that appear to have unreasonable costs and need further analysis. In order to identify those organizations, the Team performed high-level cost comparisons by comparing the DOE cost data provided with readily available data published by the Department of Interior, public utilities and civil operators with similar aviation operations, per Federal Property Management Regulation Title 41 Part 101-37. Organizations in which the operating costs did not appear to be fair and reasonable in our high level reviews, per OMB A-76, are identified in this report as possible candidates for an OMB A-76 cost analysis in CAPS Phase Two.

¹ DOE/EH-0241, February 1992

Figure 1 summarizes the survey responses.

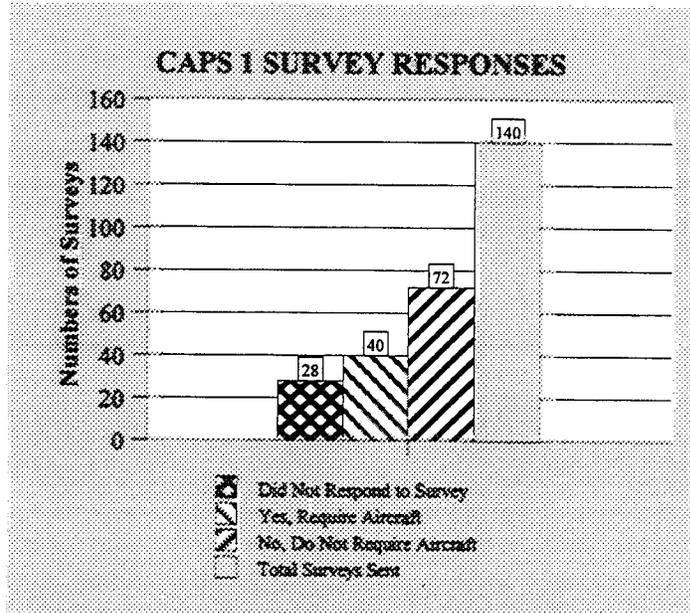


Figure 1

Background

In January 1999, the DOE Inspector General's Office issued a report that suggested the formation of a "centralized aviation office" at Headquarters with increased authority to strengthen the Department's aircraft management. DOE accomplished this in May 1999 with the formation of the OAM. The Secretary assigned MA-10 the responsibility and authority, in collaboration with Program and Operations offices, to make suggestions to the Secretary to improve overall fleet management in the following areas:

- Validating the mission requirements to justify aircraft acquisitions;
- Ensuring that accurate charter, contract, and rental information is collected and provided to General Services Administration (GSA) as required by current Federal government policy;
- Identifying aircraft operations that are uneconomic and implementing appropriate corrective actions, and
- Scheduling, managing, and coordinating periodic assessments of the continuing need for aircraft.

Background (Continued)

The CAPS Phase One Team determined at the very start of the study that a difference of opinion existed in terminology, methodologies, and requirements for verifying aircraft support for Departmental programs. In an effort to enhance the management of the DOE aviation program, the CAPS Phase One Team has attempted to clarify these issues.

How is aircraft use validated?

During the review of data and follow-up interviews, it became obvious that one customer's mission could be interpreted to be another customer's program. It appears that "mission" has become a misnomer that has led to confusion regarding the need for aircraft support. Therefore, the CAPS Phase One Team feels that DOE may need to re-evaluate the use of these terms. Often, the Department justifies aircraft by each organization's mission. For example, the Transportation Safeguards Division, Emergency Response Division, or Line Maintenance Division would justify the aircraft for their particular mission. However, these organizations exist to support an overall program, such as the Nuclear Stockpile Stewardship Program, and the aircraft is a tool for the organization to use in support of their responsibilities to the overall DOE program. Programs require multiple assets, i.e., trucks, personnel, aircraft, etc. to accomplish the program activities. Therefore, assets should be validated against a program rather than a particular organization. To identify the current and future customers' requirements for aircraft support, the CAPS Phase One Team identified the programs and the types of aircraft missions or operations required to successfully fulfill program responsibilities.

What are the current and future programs that require aircraft support?

The CAPS Phase One Team validated that aircraft are essential to support DOE's four Lead Program Secretarial Offices (LPSO). The LPSOs are responsible for the core programs; the business lines of the Department. The four core DOE programs that aircraft support are National Security, Environmental Quality, Science, and Energy Resources. DOE core programs are established by Congress or by Presidential Directive, Federal law and regulation, or by Federal contingency plans signed by Federal executive level agencies and therefore, the programs of DOE are justified and required by law. In addition, the CAPS Phase One Team determined requirements exist for aircraft at the Headquarters level to support the Department's core programs.

What are the aircraft missions that support programs?

The CAPS Phase One Team members reviewed the customer surveys and conducted

Background (Continued)

interviews and determined that aircraft support DOE's programs by conducting the following missions (operations): transporting personnel and cargo, conducting aerial surveys, aerial photography, patrols, etc. See Figure 2 for the percentage of flight hours flown by each aircraft mission type.

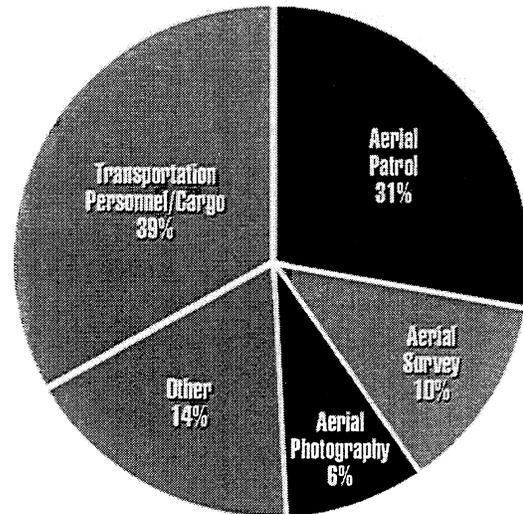
For what purposes do we justify the acquisition of aircraft?

The CAPS Phase One Team discovered that aircraft were typically justified based on the aircraft use such as carrying hazardous cargo or conducting aerial surveys. However, in this example, hazardous cargo could be transported or surveys could be conducted by several different means. The use of an aircraft, in this case, could be better justified based on time or cost savings. The primary reason aircraft are justified is that aircraft save time, and time savings equates to cost savings. Aircraft are also justified, in most cases, for the following reasons:

- Terrain prohibits any other mode of transportation,
- Scientific atmospheric research programs require atmospheric sampling at altitude,
- Time constraints on moving personnel and cargo in support of nuclear emergencies is critical,
- Aircraft can cover vast areas for survey programs in far less time than ground surveys, and
- Rotary-wing aircraft have the ability to hover and carry loads to remote mountainous sites.

Does DOE require aircraft capable of CONUS and OCONUS aircraft operations?

During the survey, the program offices and the operations offices provided the CAPS Phase One Team members with information that was used to determine the need to acquire aircraft capable of operating non-stop from the Continental United States (CONUS) to areas outside the Continental United States (OCONUS).



Flight Hours by Mission Type
(Percent of Total Hours Flown/Year)

Figure 2

Aircraft are also justified, in most cases, for the following reasons:

Background (Continued)

It was determined that several sites and two Headquarter's programs require an OCONUS aircraft capability, they are:

1. National Security, Emergency Response Program
 - Oak Ridge Operations Office's Radiological Assistance Program (RAP) Region 2,
 - Savannah River Sites RAP Region 3,
 - Oakland Operations Office's RAP Region 7 ,
 - Nevada Operations Office's Federal Radiological Monitoring and Assessment Center, and
 - Albuquerque Operation Office's Accident Response Group Phase 1.
2. Departmental support at the Headquarters level

These Program Offices clearly defined their OCONUS transportation needs. Except for the sites mentioned above, all other OCONUS transportation needs, in an actual emergency, are supported by Department of Defense (DoD). Many of the Emergency Response program capabilities require large numbers of personnel and cargo shipments to be transported at once. National Security programs have either Memorandums of Understanding or Memorandums of Agreement in place with DoD to provide the OCONUS transportation needs at no cost to DOE. However, for training exercises, the DOE is responsible for acquiring the aircraft assets for OCONUS. In addition, the Radiation Assistance Center/Training Site located at the Oak Ridge Operations Office deploys overseas but the transportation needs in those instances can be met by scheduled commercial air carriers.

DoD is responsible for bringing nuclear materials from OCONUS sites in support of the Stockpile Stewardship (Weapons Management) program. Once the materials are in CONUS and DOE takes custody, then DOE is responsible for transportation within CONUS to various repositories.

The key issue here is, whether DOE has an extensive requirement for aircraft capable of flying non-stop from the United States to places outside the CONUS. If DOE had the program requirements that would support the purchase of aircraft with transcontinental capabilities then the CAPS Phase One Team would support it. However, the CAPS Phase One Team found less than 100 flight hours of utilization for aircraft with an OCONUS capability. The CAPS Phase One Team determined DOE has very limited need for aircraft capable of OCONUS operations when considering the programs' historical and predicted utilization. With this low utilization, charter aircraft may prove more cost effective than acquiring DOE owned aircraft.

Background (Continued)

Are DOE-owned aircraft or future acquisitions in support of the DOE programs exempt from OMB Circular A-76, Performance of Commercial Activities?

Historically, most of the program and operations organizations that operate DOE-owned aircraft believed their aviation operations are exempt from the OMB A-76 cost analysis because the aircraft were acquired for national security programs. Aircraft operations that are designated in writing by the Secretary of Defense as essential to support national security, or that are designated by the Administrator of the Central Intelligence Agency in writing as essential to intelligence gathering operations are exempt from OMB A-76 cost analysis. However, none of the recurring aircraft activities are designated by the Secretary of Defense or the Director of the Central Intelligence Agency as essential to assuring the national defense or national intelligence operations.

Also, the CAPS Phase One Team members determined the majority of DOE's aircraft missions and operations are not inherently governmental but are recurring commercial activities by definition in accordance with OMB guidance. The CAPS Phase One Team confirmed that DOE programs and offices operating DOE-owned aircraft are required to conduct an OMB A-76 cost analysis. The reasons DOE aviation operations are "not" exempt include the following:

- OMB A-76, revised in August 1999 states, "Certain functions are inherently Governmental in nature, being so intimately related to the public interest as to **mandate performance only by Federal employees**. These functions are not in competition with the commercial sector. Therefore, these functions shall be performed by Government employees." Since many of DOE aircraft operations are performed by contractor personnel, such operations by definition are not inherently governmental.
- DOE is not exempt because aviation activities are, for the most part, commercial activities. OMB Circular A-76 also states, "A **commercial activity** is one which is operated by a Federal executive agency and which provides a product or service that could be obtained from a commercial source."
- OMB A-76 states, "A commercial activity also may be part of an organization or a type of work that is **separable** from other functions or activities and is suitable for performance by contract." This report identifies the aviation activities that are separable and therefore subject to OMB A-76 analysis. As an example, Nuclear Stockpile Stewardship is an inherently governmental function; however, the transportation of these materials, just like the maintenance, inspection, and production activities, are separable from the inherently governmental function of being responsible for the control of the nuclear materials.

In summary, the CAPS Phase One Team believes that the aviation program management could be enhanced if the information discussed above was communicated and implemented uniformly throughout the Department.

Identifying Current and Future Customer Requirements

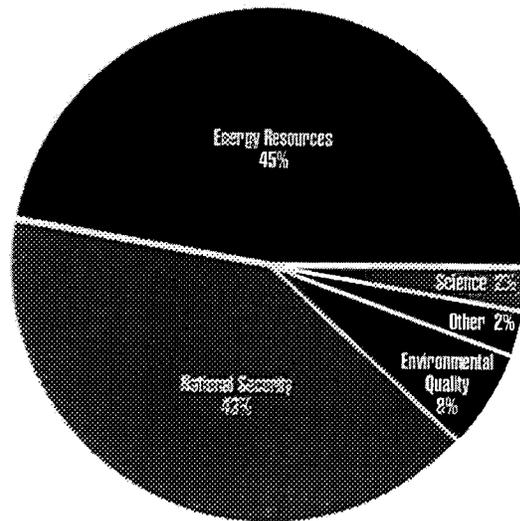
As discussed in the previous section, the CAPS Phase One Team validated that aircraft are essential to support DOE's four core programs, National Security, Environmental Quality, Science, and Energy Resources. Figure 3, indicates the percentage of total flight hours flown by each program. For summary information by program and operations office, refer to Figures 4 and 5, Program and Operations Customer Summaries. For detailed information, see the CUSTOMER SUMMARY TABLES. The requirements for these core programs are discussed below:

Energy Resources

The CAPS Phase One Team validated that aircraft are essential to meeting program requirements for DOE's Energy Resources programs, and all of its recurring aviation activities are separable. Energy Resource programs are the largest consumer of aviation activities.

The CAPS Phase One Team members determined that the Power Marketing Administrations (PMAs) are well-managed programs within the Department's aviation activity. Bonneville (BPA), Western, and Southwestern PMA cost accounting programs allow detailed information to be extracted that assisted the CAPS Phase One Team to validate the program requirements and utilization. The PMAs use government-owned and government-operated and contractor-owned and contractor-operated aircraft in direct support of their overall program of supplying reliable, safe, and cost-effective electrical power. Rotary wing aircraft are used for transmission line inspection, maintenance, repair, and construction. Government-owned and government-operated and contractor-owned and contractor-operated fixed and rotary wing aircraft support their programs by transporting personnel and cargo throughout their areas of responsibility. The use of rotary-wing and fixed-wing aircraft have proven to be cost effective in supporting the PMA programs.

The BPA conducted a full cost competitive OMB A-76 study in 1983 and Western conducted a full program cost analysis in 1998. BPA re-evaluated the 1983 OMB A-76 study in 1991, and the review clearly indicates the rotary-wing and fixed-wing aircraft save time and money and are justified. BPA and Western have reduced their fleet of aircraft and personnel over the last three years and have re-evaluated their program needs. These reductions have led to cost savings and better management of the Power Marketing assets.



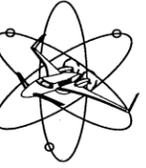
Flight Hours by DOE Business Lines
(Percent of Total Hours Flown/Year)

Figure 3

Figure 4



DOE AVIATION PROGRAM CUSTOMER SUMMARY



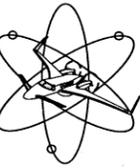
TYPE OF FLIGHT OPERATION	DP-1 (Defense Programs)		EM-1 (Environmental Mgmt.)		FE-1 (Fossil Energy)		MA-1 (Management & Admin.)		NE-1 (Nuclear Energy, Science, & Technology)		NN-1 (Nonproliferation & National Security)		SC-1 (Science)		SO-42 (Security & Emergency Operations)	
	DP-10/132 (Primaries & Test Readiness)	DP-22 (Nuclear Weapons Stockpile)	EM-30 (Waste Management)	EM-40 (Restoration)	EM-62 (Safeguards & Security)	EM-70 (Site Operations)	FE-40 (Strategic Petroleum Reserve)	MA-8 (Scheduling)	MA-10 (Aviation Management)	NE-50 (Space & Defense Power Systems)	NN-20 (Research & Development)	SC-70/74 (Bio & Env. Research)	SO-42			
TRANSPORTATION PERSONNEL/CARGO																
↳ Nuclear Weapons Program		X	X													
↳ Emergency Response Program										X						X
↳ Powerline/Pipeline Maintenance							X									
↳ Official Travel *		X			X			X	X							
↳ Mission Travel *		X	X		X			X	X					X		X
↳ Emergency <Medical Evacuation>										X						
AERIAL PATROL																
↳ Powerline <Maintenance/Inspection>		X							X							
↳ Pipeline <Inspection>									X							
↳ Security <Facilities Security>		X														
AERIAL PHOTOGRAPHY																
↳ Environmental Assessment		X			X		X									X
↳ Site Maintenance					X			X								
↳ Site <Construction Decommissioning>					X			X								
AERIAL SURVEY																
↳ Atmospheric Assessment		X													X	
↳ Biological Assessment					X											
↳ Environmental Assessment					X											
↳ Radiological Assessment		X			X					X				X		X
EXTERNAL LOAD (ROTORCRAFT ONLY)																
↳ Construction																
↳ Maintenance (Site)																
↳ Forest Management																
AERIAL APPLICATION																
↳ Fertilization																
↳ Herbicide Applications																
↳ Seeding																
RESEARCH & DEVELOPMENT																
↳ Sensor/Equipment Development												X		X		X

* See Definitions Section

Figure 5



DOE AVIATION FIELD CUSTOMER SUMMARY



TYPE OF FLIGHT OPERATION	ALBUQUERQUE OPS OFFICE		CHICAGO OPS OFFICE			IDAHO OPS OFFICE		NEVADA OPS OFFICE		OAKLAND OPS OFFICE		OAK RIDGE OPS OFFICE		RICHLAND OPS OFFICE		SAVANNAH RIVER SITE OPS OFFICE		STRATEGIC PETROLEUM RESERVE		YUCCA MOUNTAIN		BONNEVILLE POWER ADMIN.		SOUTHWESTERN POWER ADMIN.		WESTERN AREA POWER ADMIN.		END CUSTOMER	
	Los Alamos National Lab	Sandia National Lab	Kansas City Program Office	Amarillo Program Office	Rocky Flats Field Office	Argonne National Lab	Brookhaven National Lab	Fermi Laboratory	Lawrence Berkley National Lab	Lawrence Livermore National Lab	Pacific Northwest National Lab	Savannah River Site	Strategic Petroleum Reserve	Yucca Mountain	Bonneville Power Admin.	Southwestern Power Admin.	Western Area Power Admin.												
TRANSPORTATION PERSONNEL/CARGO																													
↳ Nuclear Weapons Program	X		X	X							X	X																DP	
↳ Emergency Response Program	X	X	X					X		X				X	X	X		X										DP	
↳ Powerline/Pipeline Maintenance																												ER	
↳ Official Travel *	X							X		X				X	X	X		X			X				X			ER, EQ, DP, SC	
↳ Mission Travel *	X	X	X					X	X	X				X	X	X		X		X								DP, SC, EQ, ER	
↳ Emergency <Medical Evacuation>											X	X					X											SRS, SPRO	
AERIAL PATROL																													
↳ Powerline <Maintenance/Inspection>														X														ER, DP, EQ	
↳ Pipeline <Inspection>																			X									ER	
↳ Security <Facilities Security>																		X				X						ER, EM, DP	
AERIAL PHOTOGRAPHY																													
↳ Environmental Assessment		X	X			X				X	X		X	X	X		X		X	X								ER, EQ, DP, NE	
↳ Site Maintenance		X	X			X			X	X			X	X	X		X		X	X								ER, SC, EQ, DP	
↳ Site <Construction Decommissioning>		X						X	X						X			X	X						X			EQ, SC, ER	
AERIAL SURVEY																													
↳ Atmospheric Assessment									X						X	X												SC	
↳ Biological Assessment									X	X																		EQ	
↳ Environmental Assessment		X				X																						ER, DP, EQ	
↳ Radiological Assessment											X																	DP, EQ	
EXTERNAL LOAD (ROTORCRAFT ONLY)																													
↳ Construction																												ER	
↳ Maintenance (Site)			X																									ER	
↳ Forest Management																												EQ	
AERIAL APPLICATION																													
↳ Fertilization																												ER	
↳ Herbicide Applications						X																						ER, EQ	
↳ Seeding																												ER	
RESEARCH & DEVELOPMENT																													
↳ Sensor/Equipment Development		X	X						X				X																SC, DP, NN

* See Definitions Section

Identifying Current and Future Customer Requirements (Continued)

In September 1999, BPA conducted an audited cost analysis of the government-owned fixed-wing aircraft operations that support program and official travel needs². The audited cost analysis indicates the fixed-wing aircraft are necessary and justified in accomplishing BPA's core program, and they reduce BPA's administrative cost.

The CAPS Phase One Team determined that the PMAs appear to have some of the best cost accounting procedures and business management practices of the aircraft operators within the Department. Data gathered from non-Federal public utilities indicate that the DOE PMAs aircraft cost of operations appears to be fair and reasonable; programs are well managed; and aircraft are justified within these programs³.

Strategic Petroleum Reserves Operation (SPR) uses commercially owned and operated aircraft in direct support of its overall program. Under the Transportation Regulations, Title 49 CFR, it is a requirement for entities transporting oil to ensure the integrity of pipelines during oil shipments. Small, single-engine, fixed-wing aircraft are used for pipeline line inspection during oil transfers among the holding caverns. These aircraft have proven to be the most effective method in patrolling the pipelines for this mission. In addition, many areas where the SPR pipelines are routed prevent conventional methods of inspection due to swamps and other hazards. SPR has competitively bid its pipeline patrol activities using a "per mile" patrolled, instead of competing its work by the "flight hour." The fixed wing aircraft operator charges SPR approximately \$1.63 per mile rather than conventional \$120 per flight hour charge. This allows SPR to better control the cost of this vital service.

SPR utilizes commercially owned and operated rotary-wing aircraft to support the maintenance of pumping stations by transporting crews and equipment to inaccessible sites. Rotary-wing aircraft are also used for emergency medical evacuations from the remote work sites that make up the SPR facilities. The aircraft are justified and costs appear to be fair and reasonable to support the SPR programs, based on competitively bid Basic Ordering Agreements.

² BPA document dated September 1, 1999, Review of Fixed-wing Aircraft Costs and Alternatives.

³ Salt River Project, Aircraft Cost statement

Identifying Current and Future Customer Requirements (Continued)

National Security

The CAPS Phase One Team validated that aircraft are essential to meeting program requirements for DOE's National Security programs, and most of the recurring aviation activities are separable. National Security Programs are the second largest consumer of aviation activities (See Figure 3).

National Security: Emergency Response

The CAPS Phase One Team validated the emergency response program that supports DOE's National Security Program. The CAPS Phase One Team feels this is one program where the managers clearly defined aircraft requirements and expected utilization, including the number of personnel and pounds of cargo to be transported. The infrastructure of the Emergency Response program consists of seven different components that DOE can deploy in the event of a civilian nuclear accident or nuclear weapons accident. In addition, the capabilities include search and response activities in the event of a threat.

The Emergency Response Program management clearly defined the types of aerial capabilities needed to support the emergency response infrastructure, the aircraft requirements, and the Federal requirement for DOE to have the aviation capabilities available. However, the Emergency Response Program is a "firehouse" type activity. In other words, DOE must have aircraft capabilities to support the program requirements, but the utilization is dependent on the number of call-ups received. Nevertheless, like all "tools" that are required to support emergencies, DOE must keep a level of preparedness to ensure the program capabilities can support an actual emergency. Therefore, annual training exercises for each of the emergency response capabilities are budgeted for and planned in advance. DoD supports the emergency responses for OCONUS flight operations in a real emergency at no cost to DOE.

The CAPS Phase One study found the Remote Sensing Laboratory and its Aerial Measurements System (AMS) to be the only program that is singularly unique and should be recognized as a Federal asset, not just a DOE asset. Only DOE has AMS aircraft providing multispectral photography and radiological capabilities that many DOE sites and outside customers rely on for this capability. The Nuclear Regulatory Commission and Environmental Protection Agency, to name two, use the DOE AMS assets to provide detailed environmental analysis of commercial and government-owned facilities. The Emergency Response Program Office clearly indicated there is no need for a high altitude multispectral AMS asset within the Emergency Response program. However, the CAPS Phase One Team verified that the environmental quality programs of the Department do require high altitude multispectral surveys. The costs of this aircraft capability appear to be fair and reasonable,

Identifying Current and Future Customer Requirements (Continued)

considering the aircraft modifications and special equipment⁴. The CAPS Phase One Team members validated the AMS aircraft are justified to support the Environmental Quality and National Security programs. The AMS is a recurring aircraft capability that can be validated for multiple programs, extending beyond National Security programs.

The CAPS Phase One Team used the information given to us by the program office to make some assumptions on the potential flight hours for future use involving aircraft. In addition, the team was able to determine from surveys and interviews that DOE offices that make up the eight emergency response regions, in some cases, do not have air transportation arranged for meeting the program requirements. The OAM will need to work with the program office and operations offices in locating aviation providers to meet the needs of this program. See "Types of Aircraft Services Providers" for a discussion on reporting charter aircraft.

National Security: Research and Development

One type of aircraft operation that DOE conducts in support of its National Security program responsibilities is **research and development** of classified sensors and equipment to support the Nuclear Nonproliferation (NN) program. The CAPS Phase One Team members determined that the aviation activities cannot be separated from the basic NN research and development activities. During the study, the NN program was compared to the Science program's research, and it was determined that the Science aircraft are not research and development aircraft. Instead, the Science aircraft are aerial platforms conducting surveys that gather data for the basic scientific research. The only exception is the Unmanned Air Vehicle being sponsored by the Science Program. Therefore, Science's research and development program requirements for aircraft operations are separable from the scientific atmospheric research, unlike the NN aerial sensor research and development activities.

The CAPS Phase One Team determined that four different laboratories are involved with the NN program and utilize two DOE-owned research aircraft in addition to DoD aircraft. The program utilizes other aircraft supplied by DoD for the conduct of these experiments, usually at no cost to DOE. However, the Team found that DOE had paid the DoD approximately \$2,000,000 for the use of one DoD-owned fixed-wing turbo-jet aircraft that had not been reported previously.

The CAPS Phase One Team believes the National Security program needs aircraft to accomplish its program. This recurring aircraft activity is subject to OMB Circular provisions. The team supports the need for a joint, streamlined cost analysis between the NN

⁴ Based on CAPS Phase One Team cost comparisons between civil operators and Nevada's calculated flight hour rates.

Identifying Current and Future Customer Requirements (Continued)

organization, OAM, operations offices, and the laboratories. The program can support more aircraft, and the need for a larger, fixed-wing aircraft may be justified, based on proposed utilization.

National Security: Stockpile Stewardship

The Office of Nuclear Weapons Management is a program-level office that is responsible for ensuring the reliability and safety of the nuclear stockpile in support of DOE's Stockpile Stewardship responsibilities. At the Office of Nuclear Weapons Management, no specific requirements were determined that would aid in the identification of the size or type of aircraft required to support this program, other than the requirements supplied by the Albuquerque Operations Office. However, a classified report that clearly defines requirements for numbers of personnel and pounds of cargo to be transported and expected aircraft utilization for the next 25 years substantiated the need for aircraft. This transportation operation is performed by contractors operating government-owned aircraft for operations conducted within the CONUS. The DoD is responsible for bringing shipments to the United States from areas OCONUS using military aircraft. Once the components are delivered within CONUS and DOE takes custody of the materials, then it is DOE's responsibility to transport these components to their final destination.

The program-level office relies on the Weapons Management Division and Transportation Safeguards Systems located at the Albuquerque Operations Office to determine specific operational requirements. Each shipment, whether transported by ground or by air for security reasons, is guarded by DOE Federal agents. These personnel must travel to accompany any shipments within the CONUS. This requires the program to have the capability to relieve crews when duty time limitations are met or provide additional support under emergency circumstances.

The CAPS Phase One Team determined the Weapons Management program will increase its flying activity over the next 3 to 5 years. Based on the interviews, this may require an additional large turbo-jet aircraft.

Environmental Quality

The CAPS Phase One Team validated that aircraft are essential to meeting program requirements for DOE's Environmental Quality programs and all of the recurring aviation activities are separable. Environmental Quality programs primarily use commercially owned and operated aircraft and government-owned and -operated aircraft. Environmental Quality programs are the third largest consumer of aviation activities (See Figure 3).

At the program level, no specific aircraft requirements were identified, other than the need for the operations offices responsible for environmental restoration to file reports indicating

Identifying Current and Future Customer Requirements (Continued)

progress at each site. The program offices require proper documentation of site activities, which require aerial photography and aerial surveys to be accomplished by the operations offices. Except for the radiological aerial surveys, the aircraft service providers are local, commercially owned and operated. The aerial radiological and multispectral surveys are conducted by DOE-Nevada Aerial Measurement Systems fleet aircraft. The aircraft are highly modified and cannot be easily obtained from a local vendor.

The Nuclear Waste Policy Act of 1982 established the Office of Civilian Radioactive Waste Management (OCRWM) within the DOE to develop and manage a Federal system for disposing of all spent nuclear fuel from commercial nuclear reactors and high-level radioactive waste resulting from atomic energy defense activities. The statute provides detailed direction for the scientific, technical, and institutional development of the system, and it requires that waste management facilities be licensed by the U.S. Nuclear Regulatory Commission (NRC). The Environmental Waste program requires aerial photography and aerial surveys to be conducted to document site construction activities and surveys of potential transportation routes. Again, the operations offices use local, commercially owned and operated aircraft to provide these aircraft services. In addition, senior government officials must visit these sites, and aircraft are justified for that use.

The aircraft service providers supporting Environmental Quality programs are competitively bid, and the cost appears to be fair and reasonable, based on review of procurement documents. The Team believes that management improvements could be achieved by using an Internet-based charter clearinghouse of approved vendors, as discussed later in the report.

Science

The CAPS Phase One Team validated that aircraft are essential to meeting requirements for DOE's Science programs, and all of the recurring aviation activities are separable. The Office of Science is the fourth largest consumer of aviation activities (See Figure 3).

The DOE is the third-largest government sponsor of basic research in the United States, principally through programs managed by the Office of Science. The Office of Science's programs are to advance basic research and the instruments of science that are the foundations for DOE's applied programs to provide a base for U.S. technology innovation and a source of remarkable insights into the physical and biological world and the nature of matter and energy.

Within the Office of Science, the Office of Biological and Environmental Research's Atmospheric Chemistry Program (ACP) and the Atmospheric Radiation (solar) Measurements (ARM) program provide the basic research data to determine the energy impacts on people and the biosphere.

Identifying Current and Future Customer Requirements (Continued)

The ACP and ARM programs require aerial platforms to carry sensors and detectors from 1,000 feet above the ground to heights of 60,000 feet above mean sea level to conduct aerial surveys. Aircraft are an essential part of these atmospheric research programs. However, the aircraft activity is separable and could be conducted by any aircraft configured for air sampling. The only exception is the Unmanned Air Vehicle being sponsored by Science.

There are aircraft assets located within DOE and at universities that have aerial survey capability. DOE-owned aircraft are used occasionally in this research, but for the most part contractor-owned and contractor-operated aircraft conduct the research flights from the Pacific Northwest National Laboratory (PNNL).

The Office of Biological and Environmental Research also has an Inter-Service Support Service Agreement in place with the U.S. Navy to provide a Remotely Piloted Aircraft/Unmanned Air Vehicle. In addition, the National Aeronautical and Space Administration participates in joint ventures with the Office of Biological and Environmental Research that require specialized aircraft capable of flight above 50,000 feet mean sea level. However, the primary aircraft funded directly by Office of Biological and Environmental Research is owned and operated by PNNL, Battelle, Incorporated.

The CAPS Phase One Team determined that DOE-owned and contractor-operated aircraft may be capable of conducting this type of aerial survey, thereby eliminating the need for charter aircraft. The OAM should collaborate with the Office of Biological and Environmental Research (SC-70/74); Albuquerque, Richland, and Nevada Operation Offices; Pacific Northwest National Laboratory (PNNL); and Sandia National Laboratory in a streamlined analysis to determine if more effective aircraft services are available to support the Atmospheric Chemistry Program and the Atmospheric Radiation Measurements program.

Departmental Support

The CAPS Phase One Team validated that aircraft are essential to meeting program requirements for DOE's Departmental Support functions, and all of the recurring aviation activities are separable. The type of aircraft support is dependent on senior officials and the constraints to meet demanding time schedules. The majority of flights are acquired through scheduled commercial airlines, but the need arises occasionally, due to safety concerns in foreign countries, to acquire commercially-owned and operated aircraft or use foreign government-owned and operated aircraft or DoD aircraft.

The Department provides the framework for a comprehensive and balanced national energy plan by coordinating and administering the energy functions of the federal government. The Department is responsible for long-term, high-risk research and development of energy technology, Federal power marketing, energy conservation, the nuclear weapons program, energy regulatory programs, and a central energy data collection and analysis program.

Identifying Current and Future Customer Requirements (Continued)

Because of these diverse programs, senior DOE officials are required to travel, both within the United States and internationally, to administer and participate in key Departmental business with other government officials. When required, a cost analysis is conducted to ensure that the air transportation that is provided is the most cost effective to the public and in compliance with the applicable laws. These transportation needs are supplied by mostly commercially owned and commercially operated aircraft. However, when costs are justified under OMB Circular A-126 processes, DOE or other Federally owned aircraft are used for this transportation. The CAPS Phase One Team validated that aircraft are required to support this program.

In summary, historically DOE managers from the operations offices collaborated with the program offices to justify acquisitions of aircraft on an organizational basis, such as the Transportation Safeguards Division or Emergency Response Division. The Team believes this to be a misinterpretation of the OMB guidance and Federal property regulations. This DOE practice may propagate ownership issues and the belief that aircraft are to be used only for the specific organization for which the aircraft had been justified. In addition, any use beyond that specific organization was criticized by outside auditors. It is in best interest of the Department to justify aircraft acquisitions for programs, rather than organizations. From an aviation owner's perspective, if one owns aviation assets, more customers leads to better utilization and cost efficiencies; cutbacks by one customer do not hurt the overall effectiveness of the aircraft service.

Types of aircraft service providers

Who provides aircraft support?

The CAPS Phase One Team determined that, when looking at the total number of operators providing services to DOE programs, commercially-owned and operated aircraft operators are the number one providers followed by government-owned and contractor-operated, and government-owned and government-operated providers. Based upon the CAPS Phase One limited review, data indicates that the cost of commercial services appear to be fair and reasonable, and the quality of service is acceptable. Nevertheless, the policy and management of reporting cost and utilization needs improving.

The CAPS Phase One Team identified some charter aircraft activities that were previously unknown to the Department. It would appear that DOE has been under reporting its charter aircraft activity and not complying with current Federal government policy. The CAPS Phase One Team identified all of the customers within the Department that utilize charter, contract, as well as other Federally owned aircraft under Interagency Support Service Agreements and rental aircraft.

Types of aircraft service providers (Continued)

Can we identify all of the cost and utilization associated with Charter aircraft activities?

Generally, the CAPS Phase One Team members had a difficult time determining the actual costs and utilization for these aircraft operations. The reason for this difficulty was due in part to the low cost and utilization at most offices.

As an example: One office had less than eight flight hours costing less than \$4000 annually. When asked at the operations office level about the cost and utilization data, the cost data did not often show up as "aircraft services." Instead the cost was rolled into Facilities Maintenance by the contractor, which may include hundreds of millions of dollars. Therefore, we were only able to find the charter operation after the customer had disclosed in the survey that the organization was using charters. The cost data was recovered by reviewing the contractor's procurement documents.

In addition, even at programs with established DOE-owned aviation assets, except for the PMAs, cost and utilization data was hard to retrieve due to the roll up of data at the operations or program-level offices. However, at the contractor level, costs are, for the most part, very detailed. Nevertheless, better policy from DOE Headquarters needs to be developed as to who reports and what types of information are to be provided regarding cost, mission performance, and identification of the end user.

Can we do a better job of locating charter aircraft service providers and ensure they meet DOE policy?

An issue that was identified by the CAPS Phase One Team that DOE should address is the approval of charters and acquisition of charter aircraft service providers. It is apparent now that DOE has more charter activity than previously thought. Most of the utilization of these commercial operators is low and costs appear to be fair. DOE has multiple programs that require on-demand charter aircraft. The National Security Emergency Response infrastructure reaches out to almost every office and laboratory within the DOE complex. The Headquarters Emergency Response Program Office has tasked the AL and NV Aviation Managers to identify multiple commercial aircraft providers or contractor operated aircraft to support this program. It was determined that most of the sites who have this response requirement have contracts in place, and that the costs appear to be fair and reasonable, based on a review of procurement documents from each site. However, a few of the sites have not made arrangements for commercial or contract aircraft capable of meeting the program requirements as stated to the CAPS Phase One Team.

The CAPS Phase One Team members determined that DOE could achieve some efficiencies by developing a DOE Internet-based charter operator and capabilities database. In addition, DOE policy requires pre-work safety inspections of charter operators, and this has proven cumbersome for many of the operation offices and laboratories to achieve because they only

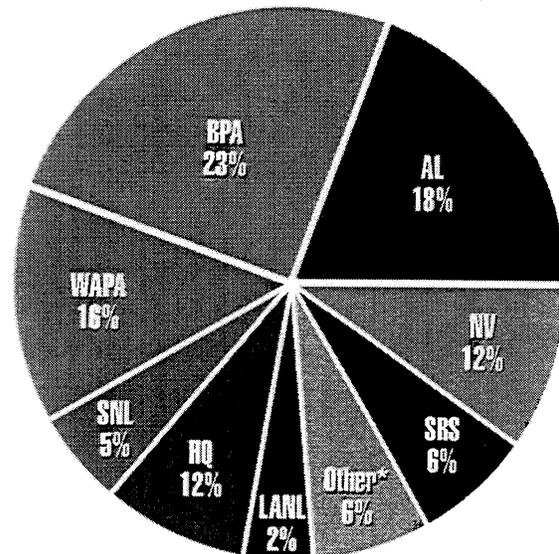
Types of aircraft service providers (Continued)

have a small non-aviation staff. In addition to ensuring consistency in the approval process of charter operators, the database will reduce the potential for redundant inspections by multiple DOE offices. The OAM can take an active role in the approval process. This is a traditional role the OAM has had, and because this issue cross-cuts many programs the OAM should be the lead office. This will improve the integrity of the process.

It is the intent of the OAM to collaborate with the program and operations offices to establish DOE reporting guidelines and policy to enable the Department to comply with Federal government policy.

Identifying aircraft operations that may require further analysis.

The CAPS Phase One Department-wide survey of aircraft users provided a baseline of aircraft utilization, using FY 98 activity and customer forecasts for the next 3 to 5 years. The data show that five operations organizations conducted 75 percent of all flight activity within the Department: Albuquerque Operations Office, Nevada Operations Office, Savannah River Operations Office, Bonneville Power Administration, and Western Area Power Administration (see Figure 6) Of these offices, the CAPS Phase One Team believes further analysis are warranted at all but the Western Area Power Administration.



**Flight Hours by Organization
 (Percent of Total Hours Flown/Year)**

* Other includes: OAK, RL, YASCP, ID, FERMI, CO, SPRO, SWPA, PNNL, LLNL, BNL, ANL, LBNL, and ORG; each of which fly less than 200 hours per year

Figure 6

Albuquerque Operations Office

The present contractor is operating under a contract awarded in 1996. This contractor has held the contract for approximately 25 years. The most recent procurement was conducted competitively, but the current contractor was the only responsive bidder. Through customer interviews, the quality of service of the contractor was determined to be acceptable. In fact, it has been exceptional and costs appear to be fair and reasonable⁵.

⁵ DOE-AL, Fiscal Year 1997 and 1998, AL Operations Review

Identifying aircraft operations that may require further analysis (Continued)

The CAPS Phase One Team determined through interviews and survey results that the Albuquerque Operations Office may not have the proper mix of fleet aircraft to meet optimum program requirements. As an example, the Sandia National Laboratory stated a need for a larger twin-turbo propeller aircraft for research and development work. In addition, the CAPS Phase One Team determined the Weapons Management program will increase its flying activity over the next 3 to 5 years. Based on the interviews, this may require an additional large, turbo-jet aircraft with capabilities beyond that of the recently purchased smaller, turbo-jet, fixed wing aircraft.

The CAPS Phase One Team recognizes that AL is in the final two years of their current aviation support services contract and has begun the follow-on procurement process. As part of this procurement process the OAM, National Nuclear Security Administration (Stockpile Stewardship Program), AL, and Sandia National Laboratory should collaborate in a simplified OMB A-76 cost study to modernize the fleet. Even though costs have been reduced over the last two years, in an effort to further reduce cost, the CAPS Phase One Team suggests that every effort be made to achieve full and open competition and that this procurement be fully coordinated with the CAPS Phase Two effort.

Western Area Power Administration

The Western Area Power Administration conducted an OMB circular A-76 analysis of its entire aviation activity in FY 98. The CAPS Phase One found that further study is not required or warranted until the next scheduled review.

Bonneville Power Administration

Although the Bonneville Power Administration reevaluated its 1983 OMB A-76 study in 1991, BPA has not conducted a full OMB circular A-76 analysis since 1983. However, A-76 provides that "Performance by in-house, contract or ISSA maybe authorized if an agency demonstrates that performance meets or exceeds generally recognized industry performance and cost standards." Bonneville Power Administration has an excellent safety and performance record. Their aircraft cost accounting system ranks among the best in DOE if not the Federal Government, and they continually track their cost of operations.

When BPA re-evaluated the 1983 OMB A-76 study in 1991, the review clearly indicated that the rotary-wing and fixed-wing aircraft save time and money and were justified. A cost study of their fixed-wing operation was completed in 1999 and demonstrated that Bonneville's fixed-wing operation clearly meets industry cost standards and is fair and reasonable. A similar study of their helicopter operation within the next year would satisfy the requirements of OMB Circular A-76.

Identifying aircraft operations that may require further analysis (Continued)

Nevada Operations Office (NVO)

NVO has a performance-based Management and Operations contractor that is a joint venture between Bechtel, Incorporated (Inc.), Lockheed Martin, Inc. and Johnson Controls, Inc. Johnson Controls has the responsibility among the joint venture partners to manage and operate the DOE owned aircraft. Costs do not appear to be unreasonable when comparing the NVO flight hour rates with other civil operators conducting aerial survey and aerial photography missions⁶. In addition, customer interviews reveal the quality of service of the contractor is clearly exceptional as well. The only issue that surfaced is that the aircraft are old and the rotary-wing aircraft fleet is mixed, indicating that cost efficiencies may be gained by upgrading and standardizing the fleet. In addition, if any decisions are made about selling the older, less capable rotary-wing aircraft and applying those proceeds toward the purchase of newer, more capable rotary-wing aircraft through the GSA exchange waiver process, the time is now. The NVO's older, less capable rotary-wing aircraft are not in demand on the market, as much as other models, and, therefore, the value of these assets will continue to decline in the future.

Because of the performance relationship between NVO and the joint venture partners, it may not be in the best interest of DOE to separate the aviation contractor from Bechtel, Inc. If the aviation management were separated and replaced by a NVO prime contractor, holding Bechtel responsible for the overall Management and Operations performance at the operations office would be difficult.

The CAPS Phase One Team suggests that NVO in collaboration with the National Security Program (Emergency Response) and the OAM conduct a simplified OMB A-76 cost analysis to modernize and standardize the NVO fleet of aircraft. The CAPS Phase One Team believes that conducting a fleet modernization analysis could obtain cost efficiencies.

Savannah River (SRS)

The SRS uses the Eurocopter model BK-117 helicopter for site support. Although the BK-117 is a twin engine helicopter, it is not able to carry a full fuel load in addition to all of the personnel and equipment necessary to meet optimum mission requirements. Fuel load is thus reduced to meet weight requirements, resulting in abbreviated flight endurance that could affect mission performance. The CAPS Phase One Team noted the need for a more powerful aircraft to achieve SRS mission weight and endurance requirements. The BK-117 is also an older, more expensive aircraft to operate. An A-76 analysis is needed to determine if replacement with medium turbine helicopters is justified.

⁶ Bechtel Nevada, Journal Voucher, Fiscal Year 1998 compared with published costs for civil operators.

Identifying aircraft operations that may require further analysis (Continued)

The CAPS Phase One Team suggests that the OAM, in collaboration with the Environmental Management program and operation offices, should conduct a fleet modernization study to determine the feasibility of standardizing the rotary-wing fleet. Cost savings and economies of scale of aviation assets may be realized if DOE could adopt a more standardized fleet.

Research and Development Activities

In November 1993, the DoD's research and development functions for monitoring nuclear explosions were transferred to DOE. The airborne research and development activity in support of the nuclear nonproliferation program require aerial platforms (aircraft). In addition, the aircraft must be able to be highly modified to support classified sensor and equipment development. The recurring aircraft activities that support the nuclear nonproliferation research and development program have been identified and the aircraft operations are not separable from the core research and development activity. However, better management of aircraft assets and coordination of these activities may improve cost effectiveness. Please refer to item 6 in the "Suggestions" section of this report.

Conclusions

The CAPS Phase Team members reviewed the DOE Strategic Plan and Secretarial memorandums concerning the management of the Department. The members understood the Department's management philosophy and reasoning for hiring contractors with the expertise necessary carry out the work of the Department. The Team also realizes that the total cost of aviation services within DOE amount to less than 1/2 of 1 percent of the overall budget of the Department. However, without proper management attention, aviation activities can carry risks, and from that perspective, the aviation program demands attention at the highest levels of management. In addition, the Team understands the Department's philosophy to have the operations offices and laboratories manage their day-to-day activities with little intervention from Headquarters, except in the area of broad policy. With this background information in mind, the CAPS Phase One Team members believe the following conclusions are valid:

- DOE should look at aircraft acquisitions from a program perspective in order to maximize utilization and increase cost effectiveness. In addition, programs need to seek advice from personnel both within and out of the Department who have aviation business expertise to assist them in making determinations before making decisions about acquiring or disposing of aircraft.
- DOE should develop policy that defines the requirements for reporting aircraft utilization and cost data in manner that is not burdensome on the reporting offices, but provides the essential data needed at Headquarters to define the scope of DOE's aviation program and track aircraft utilization.

Conclusions (Continued)

- The Department needs to conduct fleet modernization studies, using OMB A-76 methodologies, in certain areas as specified earlier in this report to ensure the Department can meet its future program needs at the lowest cost.
- DOE could achieve some efficiencies by developing a DOE Internet-based charter operator and capabilities database. DOE policy requires pre-work safety inspections of charter operators, and this has proven cumbersome for many of the operation offices and laboratories to achieve because they only have a small non-aviation staff. In addition to ensuring consistency in the approval process of charter operators, the database would reduce the potential for redundant inspections by multiple DOE offices.
- In keeping with Government's Performance and Results Act, more programs need to initiate performance measures on their contractor aircraft activities to provide a better cost analysis of aviation support in comparison to other methods of transportation, such as per pound, per unit, or per mile. This type of performance measure is used widely in the civil industry and allows the end customer (program) to contain and measure cost efficiency.

The Power Marketing Administrations (PMA) and Strategic Petroleum Reserve (SPR) deserve special recognition for effective business management of their aviation operations and for controlling cost. These organizations are well managed with clearly established customers (program) needs, and cost effectiveness is the prime driver for acquisition and disposal of aviation assets. Performance measures at the SPR are ideal for its operations; aircraft cost for pipeline patrols are solicited on a per mile basis and could be applied to more aviation operations within the Department. The per mile cost, rather than flight hour rates, allows SPR management to control their costs by placing the burden on the contractor to perform and provides SPR management with a stable price for this essential support. In addition, the PMAs accounting systems capture essential utilization and cost data for each of their corporate customers, which allows for effective audits of their aviation cost and utilization records.

The Nevada Operations Office's Remote Sensing Laboratory's Aerial Measurements Systems is a singularly unique Federal asset in its ability to provide multispectral data and analysis to support DOE and other Federal Agencies.

Suggestions

The CAPS Phase One Team members are submitting the following suggestions in an effort to provide the Senior Aviation Management Official with information that will lead to improving the Departments aviation program.

1. Bonneville Power Administration should, within eight months, conduct, in collaboration with the CAPS Phase Two Team, a BPA audited OMB Circular A-76 cost analysis of its rotary-wing aircraft operations. Thereafter, BPA should conduct a cost analysis on a scheduled basis as prescribed by OMB Circular A-126.
2. Western Area Power Administration should conduct an OMB Circular A-76 cost analysis on a scheduled basis as prescribed by OMB Circular A-126.
3. The OAM should, in collaboration with the program and operations offices, develop an Internet-based approved charter aircraft database that includes the cost, location, and capabilities of vendors. Due to the cross cutting nature of this activity, OAM should be the lead office for locating and approving charter vendors that are capable of supporting DOE programs to ensure consistency and improve efficiency of this activity.
4. The Nevada Operations Office's Remote Sensing Laboratory's Aerial Measurements Systems is a singularly unique Federal asset that justifies aircraft acquisitions in its ability to provide multispectral data and analysis to support the Nuclear Regulatory Commission, Environmental Protection Agency, DOE Environmental Quality and National Security programs. The Senior Aviation Management Official should collaborate with the program offices to secure advance funding from other Federal Agencies to fund their needs for high and medium altitude AMS aircraft.
5. OAM, working with the Aviation Board of Directors, should develop policy that defines the requirements for reporting aircraft utilization and cost data in manner that is not burdensome on the reporting offices, but provides the essential data needed at Headquarters to define the scope of DOE's aviation program and track aircraft utilization.
6. OAM should develop procedures to standardize the application of OMB A-76 aircraft acquisition studies to ensure that these studies are performed from a program perspective in order to maximize utilization and increase cost effectiveness.
7. The CAPS Phase One Team suggests the CAPS Phase Two study should begin as soon as possible. In addition, the Team suggests that the CAPS Phase Two Team prioritize the scope of the planned future study to include the following items:
 - ▶ Conducting a complete fleet modernization cost analysis of the Science Program's Air Chemistry Program and Atmospheric Radiation Measurements aircraft operation with the PNNL, Chicago, Richland and Nevada Operations Office, to determine if other more effective aircraft are available to support the Science Program.

Suggestions (Continued)

- ▶ Conducting a complete fleet modernization cost analysis of the Weapons Maintenance Program's aircraft operation,
- ▶ Conducting a fleet modernization study of the aircraft used by the National Security Programs and the Environmental Managements's Office of Safeguards and Security to determine if the aircraft can meet future programmatic needs. In addition, conduct an analysis of the National Security and Environmental Quality programs with the NVO and SRS offices to identify cost efficiencies that may be gained by modernizing the fleet of rotory-wing aircraft to better accommodate current and future program requirements.
- ▶ Conducting a cost analysis of the National Security, Research and Development programs to determine if additional aerial platforms or aircraft are required to economically meet current and future program demands. In addition, the analysis should have the laboratories thoroughly involved along with the program and operation offices to ensure all stakeholders are involved in the process.
- ▶ The data in the CUSTOMER SUMMARY TABLES should be used by the CAPS Phase Two Team in the development of any required Performance Work Statements.

Summary

The CAPS Phase One Team determined there is a need for aircraft to support the Department's four core business lines of National Security, Energy Resources, Environmental Quality, and Science, and for cost-effective transportation for the Departmental Support function. The CAPS Phase One Team validated the programs that utilize aircraft and found the use of aircraft are essential to the success of these programs.

DOE's aviation activities will increase over the next several years to support the maintenance of the Nation's nuclear stockpile, to support nuclear nonproliferation research and development, and to support the PMAs. With the increased aviation activities and utilization within the Department, better methods of justifying aircraft, measuring the cost effectiveness, and reporting of aviation activities will need to be established. Overall the costs of aviation services that support DOE's programs appear to be fair, reasonable, and the quality of service is excellent. However, the DOE fleet needs to be modernized to meet optimum program requirements.

The CAPS Phase One Team thanks the many managers and operations representatives who provided their time and effort in support of this study.

APPENDIX A - LIST OF ACRONYMS

AL- Albuquerque Operations Office

ACP - Atmospheric Chemistry Program

AGL - Above Ground Level

AMS - Aerial Measurement Systems

ANL - Argonne National Laboratory

ARAC - Atmospheric Release Advisory Capability

ARG - Accident Response Group

ARM - Atmospheric Radiation (Solar) Measurements

BNL - Brookhaven National Laboratory

BPA - Bonneville Power Administration

CAPS - Comprehensive Aviation Program Study

CFR- Code of Federal Regulations

CH - Chicago Operations Office

CONUS - Continental United States

CSO - Cognizant Secretarial Officer

DOE - Department of Energy

EH - Office of Environment, Safety and Health

FAA - Federal Aviation Administration

FAR - Federal Aviation Regulation

FRMAC - Federal Radiological Monitoring and Assessment Center

GSA - General Services Administration

ID - Idaho Operations Office

IFR - Instrument Flight Rules

IG - DOE Office of the Inspector General

IMC - Instrument Meteorological Conditions

LAB - Laboratory

LANL - Los Alamos National Laboratory

LBNL - Lawrence Berkeley National Laboratory

LLNL - Lawrence Livermore National Laboratory

LPSO - Lead Program Secretarial Office

MSL - Mean Sea Level

NEST - Nuclear Emergency Search Team

NRC - Nuclear Regulatory Commission

NN - Nuclear Nonproliferation Program; DOE Office of Nuclear Nonproliferation

NVG - Night Vision Goggles

NVO - Nevada Operations Office

OAK - Oakland Operations Office

OAM - DOE Office of Aviation Management (MA-10)

OCONUS - Outside Continental United States

OCRWM - DOE Office of Civilian Radioactive Waste Management

OPM - Office of Personnel Management

ORNL - Oak Ridge National Laboratory

ORO - Oak Ridge Operations Office

OMB - Office of Management and Budget

OPS - Operations

PMA - Power Marketing Administration

PNNL - Pacific Northwest National Laboratory

PSO - Program Secretarial Officer

RAP - Radiological Assistance Program

REAC/TS - Radiation Emergency Assistance Center/Training Site

RL - Richland Operations Office

RPA - Remotely Piloted Aircraft

SNL - Sandia National Laboratory

SPRO - Strategic Petroleum Reserve Office

SRS - Savannah River Site

SWPA - Southwest Power Administration

VFR - Visual Flight Rules

VMC - Visual Meteorological Conditions

WAPA - Wester Area Power Administration

APPENDIX B - DEFINITIONS

Aerial Applications - The dispensing of nonpoisonous cargo during flight from a DOE aircraft to accomplish a specific purpose on the ground, e.g., to extinguish a forest fire.

Aerial Survey - As used in this document means the use of an aircraft flown over a designated area or route to collect air or ground data.

Air Crewmember - A person assigned to perform duty in an aircraft during flight such as a flight attendant.

Aircraft - A device that is used or intended to be used for flight in the air.

Aircraft Accident - An occurrence associated with the operation of an aircraft that takes place between the time any individual boards the aircraft with the intention of flight and when all such individuals have disembarked and when any individual suffers death or serious injury or the aircraft receives substantial damage as described in 49 CFR Part 830. When two or more aircraft are involved in an accident, the aircraft with the most substantial damage should be used to determine the accident classification.

Aircraft Mission - A type of aircraft operation such as transportation, aerial survey, etc.

Atmospheric Assessment - As used in this report means aerial surveys for the purpose of gathering air data.

Biological Assessment - Means an aerial survey for the purposes of gathering data such as game counts, bird studies, fish habitat, etc.

Business Lines - The four Lead Program Secretarial Offices that the Secretary of Energy identified in his April 21, 1999, memorandum establishing the organization and management structure of the Department. These four LPSOs represent the core programs in which all DOE activities are centered.

Commercial Activity - An aviation activity that is conducted by a Federal Agency which provides a product or service that could be obtained from a commercial source. Commercial activities are separable from other functions or activities and are suitable for performance by contract.

Commercial Operator - As used in this report means a private company that leases or charters aircraft to others.

Customer - As used in this report means the program or office that funds the activity or derives benefit from the aircraft operation.

Customer Requirements - Those parameters established by the customer to required perform the aviation mission, i.e. number of personnel on board, aircraft range, altitude, aircraft configuration, etc.

DOE Fleet Aircraft - An aircraft that is owned or leased for more than 90 days by DOE.

DP - The DOE Headquarters Office of Defense Programs

Environmental Assessment - Means an aerial survey or aerial photography mission for the purposes of documenting conditions in the biosphere.

External Load - Means a load that is carried or extends outside the fuselage.

EM -The DOE Headquarters Office of Environmental Management.

ER - The DOE Headquarters Office of Energy Resources; one of the four business lines of the DOE.

EQ - Environmental Quality; one of the four business lines of the DOE lead by EM.

Flight Crewmember - A pilot, copilot, flight engineer, or navigator that holds a valid FAA airman's certificate and a medical certificate as a prerequisite to performance of the duties of the position during flight.

Flight Profile - A description of parameters that define aircraft and crew requirements to perform a specific Departmental mission.

Inherently governmental Activity - An aircraft operation that is so intimately related to the public interest as to mandate performance only by Federal employees and is not in competition with the private sector.

Instrument Meteorological Conditions - Flight conditions defined by the FAA in which weather conditions mandate the use of cockpit instruments for navigation. An IFR Flight Plan must be filed with Air Traffic Control before departure.

Mission - A required organizational function that may or may not require aircraft support.

Mission Travel - Activities that constitute the discharge of an agency's official responsibilities.

Mission Crewmember - An additional person onboard the aircraft required for accomplishment of the mission, such as a line patrol observer, photographer, airborne equipment operator, flight mechanic, technical representative, or a member of a security force. These individuals do not require FAA certificates..

National Security - One of the four business lines of the DOE. Lead by the Office of Defense Programs.

Official Travel - Travel to meet mission requirements, Required Use Travel, and Other Travel

Operational Control - With respect to flight, the exercise of authority over initiating, conducting, or terminating a flight.

Organizational Mission - A required program function which may or may not require aircraft support.

Program - An organized large scale effort to achieve a goal by stages.

Required Use Travel - Use of a Government aircraft for the travel of an Executive Agency officer or employee, where the use of the aircraft is required because of bona fide communications or security needs of the agency or by exceptional scheduling requirements.

Remotely Piloted Aircraft (RPA) - A RPA is an aircraft capable of flight beyond visual line of sight under remote or autonomous control for civil (non-Department of Defense) purposes. A RPA not operated for sport or hobby and does not transport passengers or crew.

SC -The DOE Headquarters Office of Science; one of the four business lines of the DOE.

Visual Meteorological Conditions - Flight conditions defined by the FAA in which weather conditions allow aircraft navigation by the use of visual references to objects on the earths surface.

APPENDIX C - CAPS PHASE ONE TEAM MEMBERS

- Art Ashton - BFA Aviation Program Manager
- Harry Frisby - SAIC Aviation Support Project Manager
- Jay Hess - SAIC Aviation Procurement/Contracts Specialist
- Mike Miles - GSA Senior Aviation Policy Analyst
- Dan O'Connell - SAIC Aviation Operation Specialist/FAA Examiner
- Gary Snodgrass - DOE Nevada Operations Office Aviation Program Manager
- Robert Steen - DOE Albuquerque Operations Office Aviation Safety Officer
- Randy Stewart - CAPS Phase One Team Leader, DOE MA-10 Senior Aviation Policy Advisor

**Customer
Summary Tables**

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
FIELD LABORATORY (PROGRAM, OFFICE) SUMMARY**

Key to Data Table

CUSTOMER REQUIREMENTS: This entry identifies the specific customer providing the mission requirements, e.g., FERMI, Environmental management and site maintenance

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE to meet program requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure Point	PAYLOAD	UTILIZATION
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
<p>“MISSION” indicates the specific program being supported by the aircraft. Data was derived from customer input. Usually from the survey or interviews.</p> <p>Example: Environmental restoration and site maintenance and facility support.</p>	<p>Indicates the DOE organization that requires the service or is the end user of the service.</p> <p>This information was obtained through surveys and CAPS One Team interviews.</p>	<p>The CAPS One Team determined a generic type of aircraft that would meet this mission based on customer requirements.</p> <p>This information was obtained through surveys and CAPS One Team interviews.</p>	<p>Indicates how long the aircraft must remain airborne to meet optimum mission requirements. The aircraft must also carry IFR or VFR fuel reserves per FAA requirements.</p> <p>This information was obtained through surveys, customer input and CAPS One Team interviews.</p>	<p>Describes the area within the National Air Space (NAS) in which the aircraft may have to operate. SL = Sea Level; MSL = Mean Sea Level.</p> <p>This information was obtained through surveys, customer input and CAPS One Team interviews.</p> <p>Example: Capable of navigation within the NAS-SL -12,500 feet MSL.</p>	<p>Indicates if the mission requires the aircraft to fly under conditions where ice may form on control services.</p> <p>This information was obtained through surveys, customer input and CAPS One Team interviews.</p>	<p>Indicates if there is a mission requirement to have the aircraft ready to take off within a specific amount of time after notification of the mission.</p> <p>This information was obtained through surveys, customer input and CAPS One Team interviews.</p>	<p>The weight the aircraft must carry including mission personnel and equipment, but excluding the flight crew.</p> <p>This information was obtained through surveys, customer input and CAPS One Team interviews.</p>	<p>Annual mission utilization in flight hours.</p> <p>This information was obtained through surveys, customer input and CAPS One Team interviews.</p>
<p>“TYPE OF OPERATION” reflects a general category of aviation activities useful for summary reporting. Data was derived from CAPS One Team information taken from the survey or interviews.</p> <p>Example: Aerial Photography</p>	<p>Example: EM CH FERMI</p>	<p>Example: Single turbine engine, Rotary wing</p>	<p>Example: 2.5 hours plus VFR reserves</p>	<p>Defines specific aircraft operational requirements or modifications for this mission.</p> <p>This information was obtained through surveys, customer input and CAPS One Team interviews.</p> <p>Example: Must have camera mounts or other photographic equipment installed or available as described in FERMI statement of work.</p>	<p>Example: No</p>	<p>Example: None, scheduled event or Yes, 2 hours</p>	<p>Example: 400 lbs. camera equipment and 1 person</p>	<p>Example: 4 hr.</p>

OTHER REQUIREMENTS: (Any “OTHER REQUIREMENTS” or “NOTES” will be listed in this section.)

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: National Security

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Amarillo Area Office (AAO), W. Steven Goodgrum

DOE

PROGRAM(s): **National Security:** The Department of Energy has important national security responsibilities. The Department maintains the safety, security and reliability of the U.S. nuclear weapons stockpile, without underground nuclear testing. The stockpile stewardship program is designed to replace nuclear testing by applying new scientific data and methods to maintain confidence in the stockpile. DOE will also provide the ability to reconstitute underground nuclear testing and nuclear weapons production capabilities as required to meet future national security requirement.

OFFICE

PROGRAM(s): **Maintenance of the Nuclear Stockpile:** Pantex Plant (Mason & Hanger) Assemble, maintain, and conduct surveillance on warheads, disassemble nuclear warheads being retired, fabricate chemical high-explosive components, store plutonium components from dismantled warheads, and establish capability for non-intrusive modification pit reuse.

AREA OF

OPERATIONS: CONUS

SURVEY RESULTS:

The AAO requires air transportation to move components it produces in support of the Weapons Management Division at the Albuquerque Operations Office and the Stockpile Stewardship Program. The AAO is responsible for overseeing the Pantex Plant and ensuring the reliability and safety of the nuclear stockpile by producing essential components necessary to maintain the nuclear stockpile. At the AAO there are no specific requirements that could be determined that would aid in the identification of the size or type of aircraft required to support this program. This transportation program is performed by contractors operating government owned aircraft for operations conducted within the Continental United States (CONUS) from the Albuquerque Operations Office.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

SUGGESTIONS:

Refer to the Albuquerque Operations Office appendix for more details of this mission and suggestions.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Amarillo Area Office

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Nuclear Stockpile Stewardship. Maintenance and inspection of the nuclear stockpile under civilian control. Transportation of life limited components.	DP-20 AL ORO SRS							See DOE-AL Summary Table.
Transportation of mission personnel and cargo								
Nuclear Stockpile Stewardship. Maintenance and inspection of the nuclear stockpile under civilian control. Transportation of special components and other items.	DP-20 AL ORO SRS							See DOE-AL Summary Table.
Transportation of mission personnel and cargo								
Nuclear Stockpile Stewardship. Transportation safeguards and security.	DP-20 TSD							See DOE-AL Summary Table.
Transportation of mission personnel and cargo								

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE OPERATIONS OFFICE SUMMARY

LEAD PROGRAM SECRETARIAL OFFICE: National Security

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Albuquerque Operations Office (DOE-AL), Aviation Manager, Cal Irvin
DOE-AL, Life Limited Components Manager, Jackie Claycomb
DOE-AL, Transportation Safeguards Division, Pete Armstrong
DOE-AL, Emergency Response Division, Richard Arkin

DOE

PROGRAM(s): **National Security, Stockpile Stewardship:** The Department is responsible for maintaining the safety, security and reliability of the U.S. nuclear weapons stockpile, without underground nuclear testing. The stockpile stewardship program makes possible U.S. goals of supporting of nuclear nonproliferation and is designed to replace nuclear testing by applying new scientific data and methods to maintain confidence in the stockpile.

National Security, Emergency Response: To provide an infrastructure and ability to respond to nuclear threats and nuclear accidents for the United States. DOE's radiological emergency response assets include the Aerial Measuring System (AMS), the Atmospheric Release Advisory Capability (ARAC), the Accident Response Group (ARG), the Federal Radiological Monitoring and Assessment Center (FRMAC), the Nuclear Emergency Search Team (NEST), the Radiological Assistance Program (RAP), and the Radiation Emergency Assistance Center/Training Site (REAC/TS). DOE's assets are ready to respond to any type of radiological accident or incident anywhere in the world. Our job is to protect people and the environment.

OFFICE

PROGRAM(s): **Maintenance of the Nuclear Stockpile:** To provide an infrastructure to maintain the nuclear weapons stockpile, including replacing limited life components and assuring an adequate supply of tritium. In addition, the nuclear stockpile stewardship requires transportation of special items that can not be shipped with the limited life components, due to safety issues.

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE OPERATIONS OFFICE SUMMARY

Emergency Response: To provide the ability to respond to nuclear threats and nuclear accidents for the United States. DOE-AL's radiological emergency response assets include the Accident Response Group (ARG), the Nuclear Emergency Search Team (NEST), and the Radiological Assistance Program (RAP). DOE-AL's assets are ready to respond to any type of radiological accident or incident anywhere in the world.

AREA OF OPERATIONS: CONUS and OCONUS

SURVEY RESULTS:

DOE-AL's Weapons Management Division and the Transportation Safeguards System is an operations level office responsible for ensuring the reliability and safety of the nuclear stockpile by implementing the Office of Nuclear Weapons Management program, which is one part of the DOE Stockpile Stewardship. At the program level, there are no specific requirements that could be determined that would aid in the identification of the size or type of aircraft required to support this program. The program level office relies on the Weapons Management Division and Transportation Safeguards System located at the Albuquerque Operations Office to determine specific requirements. However, the need for aircraft is substantiated in a classified report completed in 1989 that analyzed the safety and security of nuclear weapon components shipments within the Continental United States (CONUS). The classified report concluded aircraft were the safest and securest means of transport.

This air transportation program is performed by contractors operating government-owned aircraft for the operations within the Continental United States (CONUS). Military aircraft and the DoD is responsible for bringing shipments to the United States from areas Outside the Continental United States (OCONUS). Once the components are delivered within CONUS and subsequently delivered to DOE, then it is DOE's responsibility to transport these components to their final destination.

The transportation program requires both ground and air shipment which must be guarded for security reasons by DOE Federal Agents. These personnel must travel to accompany any shipments within the CONUS. This requires the program to have the capability of relieving crews when duty time limitations are met or providing additional support under emergency circumstances.

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE OPERATIONS OFFICE SUMMARY

It was determined through interviews of key program personnel at the DOE-AL office that DOE-AL does not have the proper mix of aircraft to accommodate optimum transportation mission needs. In addition, initial cost and utilization data from the DOE-AL annual OMB A-126 report indicate higher cost than those cost of commercial sources operating the same type of aircraft in a similar transportation operation.

SUGGESTIONS:

DOE-AL in collaboration with the Office of Aviation Management and Office of Nuclear Weapons Management should conduct an OMB Circular A-76 cost analysis to determine the proper mix of aircraft needed to adequately meet its current and future program requirements. In addition, the cost analysis should determine the most cost-effective method of delivering these transportation services to DOE. Refer to the main body of the CAPS Phase One Report for specific suggestions.

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Albuquerque Operations Office

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Nuclear Stockpile Stewardship. Maintenance and inspection of the nuclear stockpile under civilian control. Transportation of life limited components.	DP-20 KCAO AAO ORO SRS	Fixed wing, multi-engine turbo-jet	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI-35,000 MSL	Yes	None, scheduled events.	15,900 pounds 15,000 pounds of cargo and 3 personnel.	(FY00) 1200 hrs. (FY03) 2400 hrs.
Transportation of mission personnel and cargo				Modifications to airframe to ensure cargo door size will accommodate a 6' high by 8' wide load. Cabin floor capable of handling multiple tie downs and floor loading of 150 pounds per square foot. Able to accommodate flight crew plus three mission personnel. Must have DoT HAZ MAT exemption during shipments.				
Nuclear Stockpile Stewardship. Maintenance and inspection of the nuclear stockpile under civilian control. Transportation of special components and other items.	DP-20 KCAO AAO ORO SRS	Fixed wing, multi-engine turbo-jet	3 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI-35,000 MSL	Yes	None, scheduled events.	1,600 pounds 1,000 pounds of cargo and 2 personnel.	(FY00) 600 hrs. (FY03) 1200 hrs.
Transportation of mission personnel and cargo				Cabin floor capable of handling multiple tie downs and floor loading of 150 pounds per square foot. Able to accommodate flight crew plus two mission personnel. Must have DOT HAZ MAT exemption				
Nuclear Stockpile Stewardship. Transportation safeguards and security.	DP-20 TSD	Fixed wing multi-engine turbo-jet	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI-35,000 MSL	Yes	None, scheduled events.	12,000 pounds 40 personnel and equipment.	(FY00) 600 hrs.
Transportation of mission personnel and cargo				Able to accommodate 20 - 60 personnel, weapons, and equipment. Use 300 pounds per person for payload requirements. Based on customer interview an aircraft capable of transporting 40 personnel would be ideal.				
Emergency Response Accident Response Group (ARG) Phase One	SO-42 AL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI-35,000 MSL	Yes	4 hours	3250 pounds 13 personnel with baggage	24 hrs.
Transportation of personnel and cargo				None.				
Emergency Response Accident Response Group (ARG) Phase 2	SO-42 AL NVO LLNL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI-40,000 MSL	Yes	6 hours	45,280 pounds 24 personnel with 35,000 pounds of cargo	0 hrs. (DoD Aircraft)
Transportation of mission personnel and cargo				None.				

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER NEEDS AND REQUIREMENTS: Albuquerque Operations Office

MISSION TYPE OF FLIGHT OPERATION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
				SPECIAL REQUIREMENTS				
Emergency Response Accident Response Group (ARG) Phase 3 Transportation of mission personnel and cargo	SO-42 AL NVO LLNL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	8 hours	36,600 pounds 30 personnel with 30,000 pounds of cargo	0 hrs. (DoD Aircraft)
None.								
Emergency Response Joint Technical Operations Team (JTOT I) Transportation of personnel and cargo	SO-42 AL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	4 hours	1500 pounds 6 personnel	24 hrs.
None.								
Emergency Response Joint Technical Operations Team (JTOT II) Transportation of personnel and cargo	SO-42 AL NVO LLNL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	6 hours, after notification	32,700 pounds 25,000 pounds cargo and 31 personnel	24 hrs.
None.								
Emergency Response Joint Technical Operations Team (JTOT III) Transportation of personnel and cargo	SO-42 AL NVO LLNL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	6 hours, after notification	113,750 pounds 100,000 pounds cargo and 55 personnel	24 hrs. DoD operation no cost to DOE
None.								

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: Science

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Argonne National Laboratory-East
DOE-CH, Aviation Program Manager, Karl Moro
CH Argonne Group Manager, Timothy Crawford
CH Argonne Group Emergency Response, Edward Jascewsky
Argonne National Laboratory-East (ANL-E), Information Publishing Division, Gail Farmer
Argonne National Laboratory-East, Procurement, William Comerford
FERMI, Environmental Safety and Health Section, Rafael Coll

DOE

PROGRAM (s): **Science:** The DOE is the third largest government sponsor of basic research in the United States, principally through programs managed by the Office of Science. The mission of the Office of Science is to advance basic research and the instruments of science that are the foundations for DOE's applied missions, a base for U.S. technology innovation, and a source of remarkable insights into our physical and biological world and the nature of matter and energy.

Energy Resources: In service to DOE 's applied missions in energy resources, environmental quality, and national security, the Office of Science programs leads the nation in many areas of the physical and computational sciences, and contribute significantly to major advances in biological research. These programs extend the frontiers of basic scientific knowledge—DOE and its predecessor agencies have supported the award-winning scientific research of 68 Nobel Laureates from 1934 through 1998.

Environmental Management: Provide a basic understanding of the biology and ecology of energy by-products as they affect humans and the natural world. Research the human health impacts and risks, ecosystem and biological responses, and the regional and global consequences.

OFFICE

PROGRAM(s): ANL research falls into four broad categories; only two apply to this study:

Basic Science seeks solutions to a wide variety of scientific challenges. This includes experimental and theoretical work in materials science, physics, chemistry, biology, high-energy physics, and mathematics and computer science, including high-performance computing. Argonne's exciting, cutting-edge research brings value to society today by helping lay the foundation for tomorrow's technological breakthroughs.

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE OPERATIONS OFFICE SUMMARY

Environmental Management includes work on managing and solving the nation's environmental problems and promoting environmental stewardship. Research in this area includes alternative energy systems; environmental risk and economic impact assessments; hazardous waste site analysis and remediation planning; electrometallurgical treatment to prepare spent nuclear fuel for disposal; and new technologies for decontaminating and decommissioning aging nuclear reactors.

AREA OF

OPERATIONS: CONUS and Alaska

SURVEY RESULTS:

ANL-E supports key national science programs with a mission that requires access to DOE fleet aircraft and charter aircraft to be available for transportation to remote sites in Alaska. Aerial photography activities also supports ANL-E's environmental and site maintenance responsibilities.

The CAPS Phase One Team determined that ANL-E made arrangements with commercially owned and operated aviation service providers to meet the identified needs. In addition, the mission and aircraft currently supporting this mission are justified and the use of aircraft has been verified by the Team.

SUGGESTIONS:

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

Refer to SC-74 Customer Summary Table SUGGESTIONS Section, page 2 of 3.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: ANL-E, Environmental Management and Site Maintenance

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Mission Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure Point	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Environmental research projects in remote sites within the State of Alaska	SC CH ANL	Single engine piston, fixed wing	3.5 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-12,500 MSL.	No	None, scheduled events.	1030 pounds cargo and 4 personnel	2 hrs.
Transportation of personnel and cargo				None.				
Environmental restoration and site maintenance and facility support.	CH ANL	Single turbine engine, Rotorcraft	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SL-12,500 MSL.	No	None, scheduled events.	400 pounds camera equipment and 1 personnel	1 hr.
Aerial photography				Must have camera mounts and other photographic equipment as described in ANL-E statement of work.				

CUSTOMER REQUIREMENTS:

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: Science

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

DOE-CH, Aviation Program Manager, Karl Moro
Brookhaven Group, Manager, George Malosh
Brookhaven Group, Emergency Response, Steve Centure
Brookhaven National Laboratory (BNL), Assistant Laboratory Director, Kenneth Brog
BNL, Plant Engineering Department, Martin Fallier
BNL, Department of Applied Sciences, Leonard Newman

DOE

PROGRAM (s): **Science:** The DOE is the third largest government sponsor of basic research in the United States, principally through programs managed by the Office of Science. The mission of the Office of Science is to advance basic research and the instruments of science that are the foundations for DOE's applied missions, a base for U.S. technology innovation, and a source of remarkable insights into our physical and biological world and the nature of matter and energy.

In service to DOE's applied missions in energy resources, environmental quality, and national security, Office of Science programs leads the nation in many areas of the physical and computational sciences, and contribute significantly to major advances in biological research. These programs extend the frontiers of basic scientific knowledge. DOE and its predecessor agencies have supported the award-winning scientific research of 68 Nobel Laureates from 1934 through 1998.

National Security; Emergency Response: This program provides an infrastructure and ability to respond to nuclear threats and nuclear accidents for the United States. DOE's radiological emergency response assets include the AMS, the ARAC, the ARG, the FRMAC, the NEST, the RAP, and the REAC/TS. DOE's assets are ready to respond to any type of radiological accident or incident anywhere in the world. DOE's job is to protect people and the environment.

OFFICE

PROGRAM(s): BNL's main mission is nondefense basic and applied research in a variety of fields, from physics, chemistry and materials science to biology, medicine and forefront technology. BNL has also focused on environmental research, from global warming to energy technology.

Emergency Response: To provide the ability to respond to nuclear threats and nuclear accidents for the United States. BNL's radiological emergency response assets include support to the RAP.

AREA OF

OPERATIONS: CONUS

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

SURVEY RESULTS:

BNL supports key national science programs with missions that require access to DOE fleet aircraft and charter aircraft for aerial photography, infra-red surveys, and atmospheric research projects. Aerial photography and infra-red surveys support BNL's environmental restoration and site maintenance responsibilities.

The CAPS Phase One Team determined that BNL made arrangements with DOE-NV's AMS aircraft (rotorcraft) to conduct the aerial photography and infra-red surveys. However, BNL would like to locate a commercial rotorcraft operator closer to the BNL site to fulfill this need. BNL believes, and the CAPS Phase One Team supports, the BNL position that a local commercial operator could reduce the cost of this needed service.

The atmospheric research aerial survey mission is supported with Battelle's fixed wing turbine propeller airplane. BNL, Argonne National Laboratory-East (ANL-E), and Pacific Northwest National Laboratory (PNNL) jointly support this mission with scientists, and the Office of Biological and Environmental Research provides the funding for the Battelle owned aircraft.

The CAPS Phase One Team determined that other DOE-owned and contractor-operated aircraft are capable of conducting this type of aerial survey work and may already have similar sensors and probes installed. The CAPS Phase One Team believes the Office of Science, Office of Aviation Management, Richland Operations Office, ANL-E, BNL, and PNNL should collaborate in a cost analysis of the current PNNL aircraft and look at other options that may provide cost efficiencies.

Due to its location, BNL has been unable to meet its Emergency Response time limit requirements. The time required to deploy from BNL to the nearest commercial airport via service transportation has proven excessive. A search for commercial aviation vendors that could provide transportation from on or near the BNL site should be conducted.

SUGGESTIONS:

It is essential for this Laboratory, Operation Offices, and Program Offices to work with the Office of Aviation Management in establishing a Internet-based, Nation-wide, on-demand, charter aircraft vendor list.

Refer to SC-74 Customer Summary Table SUGGESTIONS Section, page 2 of 3.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Brookhaven National Laboratory

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Mission Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure Point	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Emergency Response Radiological Assistance Program (RAP)	SO-42 CH	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	3 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI-35,000 MSL	Yes	2 hours	2250 pounds 250 cargo and 8 personnel	12 hrs.
Transportation of personnel and cargo				None.				
Environmental restoration and site maintenance and facility support.	CH BNL	Single turbine engine, Rotorcraft	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SI-12,500 MSL	No	None, scheduled events.	500 pounds camera equipment and 2 personnel	5 hrs.
Aerial photography				Must have camera mounts and other photographic equipment installed or available. Single pilot.				
Environmental restoration and site maintenance and facility support.	CH BNL	Single turbine engine, Rotorcraft	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SI-12,500 MSL	No	None, scheduled events.	600 pounds camera equipment and 2 personnel	5 hrs.
Aerial photography (Infra-red)				Must have infra-red camera mount and equipment installed. Night flight operations requires two certified and current pilots under 14 CFR Part 135.				
Environmental research projects support of atmospheric measurements (Atmospheric Chemistry Program)	SC CH	Fixed wing turbo-prop, twin, pressurized	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI-25,000 MSL (Conduct of operations VMC generally below 12,500 MSL)	Yes	On call.	2,250 pounds 1,500 pounds equipment and 3 personnel	Aircraft utilization (85.5 hrs.) is shown in PNNL Table.
Aerial survey				Airframe and electrical system modifications to accommodate sensors, probes, and computers. Must be FAA approved installations.				

CUSTOMER REQUIREMENTS:

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE OPERATIONS OFFICE SUMMARY

LEAD PROGRAM SECRETARIAL OFFICE: Energy Resources

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Bonneville Power Administration (BPA), Chief Operating Officer, Steve Hickok
BPA, Aviation Manager, Art Ashton
BPA, Rotary-Wing Chief Pilot, Wayne Noonan
BPA, Fixed-Wing Chief Pilot, George Schwartz
BPA, Transmission Business Line, Vickie Vanzant, V.P., Operations and Planning

DOE

PROGRAM (s): **Energy Resources:** The Office of Energy Efficiency and Renewable Energy (EERE) develops and deploys efficient and clean energy technologies that meet our nation's energy needs, enhance our environment, and strengthen our national competitiveness. The results of our programs are dramatic—from a more efficient U.S. industrial base to a growing clean energy technology industry; from tremendous energy savings in homes, offices, and government buildings to a car of the next decade with triple the fuel economy of today's sedan.

OFFICE

PROGRAM(s): The Bonneville Power Administration is an agency of the U.S. Department of Energy. It wholesales electric power produced at 29 federal dams located in the Columbia-Snake River Basin in the northwestern U.S., as well as the power from one non-federal nuclear plant. BPA is a federal utility, specifically one of five power marketing agencies (PMAs). The others are the Southeast, Southwest, Western Area and Alaska power administrations. BPA was founded in 1937. It was established in the Bonneville Project Act, originally as an interim agency to market the power produced by Bonneville Dam. The dam was then under construction on the Columbia River about 45 miles east of Portland, Oregon. In 1940, BPA's marketing responsibilities were broadened to include the power from Grand Coulee Dam in central Washington. Eventually, BPA's status was changed to that of a permanent agency, first within the U.S. Department of Interior, then in 1977, within the U.S. Department of Energy.

Bonneville's principal service territory includes the states of Oregon, Washington, Idaho and the portion of Montana west of the Continental Divide. BPA also directly serves small portions of California, Nevada, Utah and Wyoming. In addition, it sells surplus power to California and the Southwestern U.S. BPA's service territory covers approximately 775 000 square kilometers (300,000 square miles). The agency employs approximately 3,200 people. The Pacific Northwest Electric Power Planning and Conservation Act of 1980 extended BPA's responsibilities to include development of conservation resources in the region and improvement of the Northwest's fish and wildlife resources that have been affected by the construction of hydropower plants in the Columbia River Basin. BPA's Transmission Business Line moves power sold by Bonneville and others throughout the Northwest and, through the alternating-current and direct-current interties with California, across the western U.S. The Transmission

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

Business Line maintains over 300 substations and nearly 24,000 kilometers (15,000 miles) of transmission lines across the Northwest.

AREA OF

OPERATIONS: States of Washington, Oregon, Idaho, Montana, Utah, and California

SURVEY RESULTS:

BPA uses government-owned and government-operated aircraft in direct support of its overall program of supplying reliable, safe, and cost-effective electrical power. Rotorcraft aircraft are used for transmission line inspection, maintenance, repair, and construction. Government-owned and government-operated fixed-wing aircraft support BPA's mission by transporting personnel and cargo throughout BPA's area of responsibility. The use of rotorcraft and fixed-wing aircraft have proven to be cost effective in supporting BPA's programs.

The BPA conducted a full cost competitive OMB A-76 study in 1983. BPA re-evaluated the OMB A-76 study in 1991, and the review clearly indicates the rotary-wing and fixed-wing aircraft save time and money. BPA has reduced its fleet of aircraft and personnel over the last three years and re-evaluated its program's needs. These reductions have led to cost savings and better management of the BPA assets. BPA in September 1999 conducted an audited cost analysis of the government-owned fixed-wing aircraft operations that support mission and official travel needs. The fixed wing aircraft are cost justified in transporting personnel to various sites throughout the BPA area of operations. The audited cost analysis proves the fixed wing aircraft are necessary in accomplishing BPA's core mission and they reduce BPA's administrative cost.

The CAPS Phase One Team did compare BPA's cost of operation to a civil utility company operating aircraft of similar type and conducting the same type of aircraft operations. The CAPS Phase One Team concluded the rotary- and fixed-wing assets are essential to conducting BPA's mission and their cost of operations appear to be fair and reasonable.

SUGGESTIONS:

BPA should conduct an audited cost analysis of its rotorcraft operations similar to the one just completed on the fixed-wing aircraft within the next year.

BPA is required to conduct OMB Circular A-76 cost analysis and studies. However, the types of missions supported by BPA aircraft are so different from those of the rest of the Department, any studies should be conducted by BPA.

BPA should collaborate with the CAPS Phase Two Team on conducting the BPA Cost Analysis.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: BONNEVILLE POWER ADMINISTRATION

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Official Travel and travel related to BPA mission activities	BPA	Fixed wing multi-engine turbo-prop, pressurized	3 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	None, scheduled events.	1760 pounds 8 personnel and baggage.	993 hrs.
Transportation of personnel and cargo				None.				
Official Travel and travel related to BPA mission activities	BPA	Rotorcraft single engine turbine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SL-12,500 MSL	No	None, scheduled events.	880 pounds 4 personnel and baggage	350 hrs.
Transportation of personnel and cargo				None.				
Powerline inspection and maintenance	BPA	Rotorcraft single engine turbine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL [Rotorcraft] (Conduct of operations VMC)	No	None, scheduled events. * Crews are available for Emergency patrols in the event of power outages	1500 pounds 50 pounds equipment and 1 personnel	1,345 hrs.
Aerial patrol				Wire strike kit installation, GPS, infrared camera mount and wiring, cargo hook, and company radios.				
Infrared photography powerline system inspection and maintenance.	BPA	Rotorcraft single engine turbine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL [Rotorcraft] (Conduct of operations VMC)	No	None, scheduled events.	1500 pounds 100 pounds equipment and 1 personnel	146 hrs.
Aerial photography				Wire strike kit installation, GPS, infrared camera mount and wiring, cargo hook, and company radios.				
Security patrols are accomplished to ensure right-of-way is not infringed, protect against sabotage, and vandalism.	BPA	Rotorcraft single engine turbine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL [Rotorcraft] (Conduct of operations VMC)	No	None, scheduled events.	1500 pounds 50 pounds and 1 personnel	0 hrs.
Patrol (security)				Wire strike kit installation, GPS, infrared camera mount and wiring, cargo hook, and company radios.				
Powerline maintenance and repair.	BPA	Rotorcraft single engine turbine, 6,500 pounds GW or less	2.0 hours plus VFR reserves	Capable of navigation within the NAS-SL-12,500 MSL Conduct of operations VMC	No	None, scheduled events.	1500 pounds 1500 pounds of cargo	155 hrs.
External load				Wire strike kit installation, GPS, infrared camera mount and wiring, cargo hook, and company radios. Conduct of operations under 14 CFR Part 133.				

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: BONNEVILLE POWER ADMINISTRATION

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Powerline survey's for proposed new powerlines.	BPA	Rotorcraft single engine turbine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SL-12,500 MSL Conduct of operations VMC	No	None, scheduled events.	660 pounds 3 personnel and baggage	17 hrs.
Aerial survey				Wire strike kit installation, GPS, infrared camera mount and wiring, cargo hook, and company radios.				
Powerline right-of-way maintenance and repair.	BPA	Rotorcraft single engine turbine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SL-12,500 MSL Conduct of operations VMC	No	None, scheduled events.	1500 pounds 1500 pounds of cargo	130 hrs.
Aerial application				Wire strike kit installation, GPS, infrared camera mount and wiring, cargo hook, and company radios. Conduct of operations under 14 CFR Part 137.				

CUSTOMER REQUIREMENTS:

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: Science

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Chicago Operations Office, DOE-CH
DOE-CH, Aviation Program Manager, Karl Moro
DOE-CH, Emergency Response Division, Ed Jascewsky

DOE

PROGRAM (s): **Science:** The Department of Energy (DOE) is the third-largest government sponsor of basic research in the United States, principally through programs managed by the Office of Science. The mission of the Office of Science is to advance basic research and the instruments of science that are the foundations for DOE's applied missions, a base for U.S. technology innovation, and a source of remarkable insights into our physical and biological world and the nature of matter and energy.

In service to DOE's applied missions in energy resources, environmental quality, and national security, Office of Science programs lead the nation in many areas of the physical and computational sciences, and contribute significantly to major advances in biological research. These programs extend the frontiers of basic scientific knowledge—DOE and its predecessor agencies have supported the award-winning scientific research of 68 Nobel Laureates from 1934 through 1998.

National Security; Emergency Response: To provide an infrastructure and ability to respond to nuclear threats and nuclear accidents for the United States. DOE's radiological emergency response assets include the Aerial Measuring System (AMS), the Atmospheric Release Advisory Capability (ARAC), the Accident Response Group (ARG), the Federal Radiological Monitoring and Assessment Center (FRMAC), the Nuclear Emergency Search Team (NEST), the Radiological Assistance Program (RAP), and the Radiation Emergency Assistance Center/Training Site (REACT/TS). DOE's assets are ready to respond to any type of radiological accident or incident anywhere in the world. Our job is to protect people and the environment.

OFFICE

PROGRAM(s): **Emergency Response:** To provide the ability to respond to nuclear threats and nuclear accidents for the United States. DOE-CH's radiological emergency response assets include support to the Radiological Assistance Program (RAP).

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

AREA OF

OPERATIONS: CONUS

SURVEY RESULTS:

The DOE-CH's Emergency Response Division is a key DOE National Security operations office with a mission that requires access to DOE fleet aircraft, charter aircraft, or DoD aircraft to be available for transportation on demand 24 hours a day, seven days a week, throughout the year.

The CAPS Phase One Team determined that DOE-CH requires charter companies that can meet their emergency response mission requirements. DOE-CH plans on using commercial air to meet deployment requirements. In addition, the aircraft currently supporting this mission are justified and the use of aircraft has been verified by the CAPS Phase One Team.

SUGGESTIONS:

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand approved charter aircraft vendor list.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: DOE-CH, Emergency Response

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure Point	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Emergency Response Radiological Assistance Program (RAP)	SO-42	Fixed wing turbo-jet or multi engine turbo-prop, pressurized	3 hours plus IFR Reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	6 hours (Within region)	2250 pounds 250 pounds of cargo and 8 personnel	12 hrs.
Transport pas/cargo				None.				

CUSTOMER REQUIREMENTS: SO-42 has a Memorandum of Agreement with the DoD for all OCONUS operations.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: National Security

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

DP-10/132, Office of Research, Development, and Simulation, Warren Hall

DOE

PROGRAM: The Department of Energy (DOE) has important national security responsibilities. The Department maintains the safety, security and reliability of the U.S. nuclear weapons stockpile, without underground nuclear testing. The stockpile stewardship program is designed to replace nuclear testing by applying new scientific data and methods to maintain confidence in the stockpile. DOE will also provide the ability to reconstitute underground nuclear testing and nuclear weapons production capabilities as required to meet future national security requirement.

OFFICE

PROGRAM(s): Test Readiness: Nevada Test Site Readiness

AREA OF

OPERATIONS: Nevada

SURVEY RESULTS:

The Office of Research and Testing is a program-level office that is responsible for ensuring that the Nation has the ability to conduct nuclear weapons tests if the need arises. The maintenance of the Nevada Test Site (NTS) includes patrols for powerline maintenance and the ability to transport personnel and equipment to and from the site. The program also requires a capability to photograph, map, and conduct radiological surveys for site maintenance, along with the continuing need for these capabilities for future weapons tests or current nonnuclear component tests.

Senior Federal officials and other dignitaries visit the site each year, which requires transportation by air due to the limited schedules of the travelers. The transportation needs could be performed by one of three options, either commercially owned and commercially operated aircraft, government-owned and government-operated aircraft, or government-owned and contractor-operated aircraft. There is no special requirement that would exclude this operation from being performed by any of the three previously stated options; the key determination would be cost effectiveness. However, the aerial radiological survey and multispectral photography operations are unique capabilities that DOE alone can deliver.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

SUGGESTIONS:

This customer should be involved in the Nevada Operations Office OMB A-76 fleet modernization study to determine if any cost efficiencies can be obtained by standardizing the fleet of rotorcraft aircraft. Refer to Nevada Operations Office section.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: DP-10/132, TEST READINESS - NEVADA TEST SITE

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Needs	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Departure Point to Destination	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Official Travel and travel related to NTS activities	DP-10 NVO	Rotorcraft twin engine turbine, 12,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SL-12,500 MSL	Yes	No, scheduled events.	1980 pounds 9 personnel	10 hrs.
Transportation of personnel and cargo				None.				
Aerial survey for radiological assessments	DP-10 NVO	Fixed wing multi-engine turbo-prop, pressurized	3 hours plus IFR reserves	Capable of navigation within the NAS-SL-35,000 MSL [Fixed wing]	Yes	No, scheduled events.	1500 pounds 1000 pounds installed equipment and 3 personnel	10 hrs.
Aerial survey		Rotorcraft twin turbine 12,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL [Rotorcraft]	Yes			10 hrs.
				Airframe and electrical systems modified and altered in accordance with FAA regulations to accommodate sensors and special equipment.				
Aerial multispectral (radiological and photography) surveys for site maintenance	DP-10 NVO	Fixed wing turbo-jet	4 hours plus IFR reserves	Capable of navigation within the NAS-SL-45,000 MSL [Fixed wing turbo-jet]	Yes	No, scheduled events.	1500 pounds 1000 pounds installed equipment and 3 personnel	10 hrs.
		multi-engine turbo-prop, pressurized	3 hours plus IFR reserves	Capable of navigation within the NAS-SL-35,000 MSL [Fixed wing turbo-prop]	Yes			
Aerial survey/photography		Rotorcraft twin turbine 12,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL [Rotorcraft]	No			
				Airframe and electrical systems modified and altered in accordance with FAA regulations to accommodate sensors, cameras, and special equipment.				
Security patrols must be done during weapons test to ensure no intruders are near site.	DP-10 NVO	Rotorcraft twin turbine 12,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SL-35,000 MSL Conduct of operations VMC	No	No, scheduled events.	1500 pounds 1000 pounds installed equipment and 2 personnel	8 hrs.
Patrol (security)				Airframe and electrical systems modified and altered in accordance with FAA regulations to accommodate sensors, cameras, and special equipment.				
NTS infrastructure maintenance requires powerline patrols to ensure reliable source of power.	DP-10 NVO	Rotorcraft single turbine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SL-12,500 MSL Conduct of operations VMC	No	No, scheduled events.	250 pounds 1 person	10 hrs.
Patrol (powerline)				Wire cutters installed and experienced crews.				

CUSTOMER REQUIREMENTS:

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: National Security

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

DP-22, Office of Nuclear Weapons Management: Lester Lee

DOE

PROGRAM(S): **National Security:** The Department of Energy has important national security responsibilities. The Department maintains the safety, security and reliability of the U.S. nuclear weapons stockpile, without underground nuclear testing. The stockpile stewardship program is designed to replace nuclear testing by applying new scientific data and methods to maintain confidence in the stockpile. DOE will also provide the ability to reconstitute underground nuclear testing and nuclear weapons production capabilities as required to meet future national security requirement.

OFFICE

PROGRAM(s): **Maintenance of the Nuclear Stockpile:** To provide an infrastructure to maintain the nuclear weapons stockpile, including replacing limited life components and assuring an adequate supply of tritium. In addition, the nuclear stockpile stewardship requires transportation of special items that cannot be shipped with the limited life components, due to safety issues.

AREA OF

OPERATIONS: CONUS

SURVEY RESULTS:

The Office of Nuclear Weapons Management is a program-level office that is responsible for ensuring the reliability and safety of the nuclear stockpile. At the program level there are no specific requirements that could be determined that would aid in the identification of the size or type of aircraft required to support this program. This transportation program is performed by contractors operating government-owned aircraft for operations conducted within the Continental United States (CONUS). The Department of Defense is responsible for bringing shipments to the United States from areas Outside the Continental United States (OCONUS) using military aircraft. Once the components are delivered within CONUS and subsequently delivered to DOE, then it is DOE's responsibility to transport these components to their final destination.

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE PROGRAM OFFICE SUMMARY

The program-level office relies on the Weapons Management Division and Transportation Safeguards Systems located at the Albuquerque Operations Office to determine specific requirements. However, the need for aircraft is substantiated in a classified report completed in 1989 that analyzed the safety and security of nuclear weapon components shipments within the CONUS. The classified report concluded aircraft were the safest and securest means of transport.

Each shipment, whether transported by ground or by air for security reasons, is guarded by DOE Federal agents. These personnel must accompany any shipments within the CONUS. This requires the program to have the capability to relieve crews when duty time limitations are met or provide additional support under emergency circumstances.

SUGGESTIONS:

It is essential for this customer to work with the Office of Aviation Management (OAM) in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

Refer to the Albuquerque Operations Office appendix for more details of this mission and suggestions.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: DP-22, Office of Nuclear Weapons Management

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Nuclear Stockpile Stewardship. Maintenance and inspection of the nuclear stockpile under civilian control. Transportation of life limited components.	DP-20 KCAO AAO ORO SRS							See DOE-AL Summary Table.
Transportation of mission personnel and cargo								
Nuclear Stockpile Stewardship. Maintenance and inspection of the nuclear stockpile under civilian control. Transportation of special components and other items.	DP-20 KCAO AAO ORO SRS							See DOE-AL Summary Table.
Transportation of mission personnel and cargo								
Nuclear Stockpile Stewardship. Transportation safeguards and security.	DP-20 TSD							See DOE-AL Summary Table.
Transportation of mission personnel								

CUSTOMER REQUIREMENTS:

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: Environmental Quality

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

EM-40, Office of the Deputy Assistant Secretary for Environmental Restoration, James Fiore
EM-42, Office of Eastern Area Programs, William E. Murphie
EM-43, Office of Program Integration, William Wisenbaker Jr
EM-44, Office of Northwestern Area Programs, Sally A. Robison
EM-45, Office of Southwestern Area Programs, Kimberly A. Hayes Chaney
EM-46, Office of Special Projects, Randall C. Smyth
EM-47, Office of Program Initiatives, William Wisenbaker, Jr.

DOE

PROGRAM (s): **Environmental Quality:** The Office of Environmental Restoration was created within the newly established Office of Environmental Management (EM) to consolidate, centralize, and promote the cleanup of contaminated waste sites and surplus facilities within the DOE complex.

OFFICE

PROGRAM(s): Site restoration is the process by which contaminated sites and facilities are identified, characterized, and existing contamination is contained or removed and disposed of to allow beneficial reuse of the property. The DOE Environmental Restoration Program is involved in assessment and cleanup activities at 132 sites throughout the United States.

AREA OF

OPERATIONS: CONUS

SURVEY RESULTS:

At the program level, no specific aircraft needs are identified, other than the need for the field offices responsible for environmental restoration to file reports indicating progress at each site. To properly document the activity, aerial photography and aerial surveys are accomplished. Except for the radiological aerial surveys the aircraft service providers are commercially owned and operated. The aerial radiological and multispectral surveys are conducted by DOE-Nevada AMS fleet aircraft. However, Battelle's G-1 aircraft stationed in Richland, Washington, is used to conduct air quality surveys.

SUGGESTIONS:

The Office of Aviation Management should collaborate with EM-40 to develop policy for reporting and recording the field's aircraft activity.

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: EM-40, Environmental Quality

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Environmental restoration	Various field sites	Rotorcraft, single or twin turbine.	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SL-10,000 MSL (Rotorcraft)	No	None, scheduled events.	1500 pounds	100 hrs.
		Fixed wing, mutli-turbine engine, pressurized	3 hours with VFR fuel reserves	Capable of navigation within the NAS-SL-25,000 MSL (Fixed wing) (conduct of operations VMC)	Yes		1000 pounds of equipment and 2 personnel	
Aerial survey (environmental and radiological)				Most of the operations will require specialized sensors for air or radiological sampling.				
Environmental restoration	Various field sites	Rotorcraft, single or twin turbine.	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SL-10,000 MSL (Rotorcraft)	No	None, scheduled events.	300 pounds	50 hrs.
		Fixed wing, single engine piston	3 hours with VFR fuel reserves	Capable of navigation within the NAS-SL-35,000 MSL (Fixed wing) (conduct of operations VMC)				
Aerial photography				None.				

CUSTOMER REQUIREMENTS: None.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: Environmental Quality

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

EM-62, Program Integration Office, Edmond Szymanski

EM-62, Program Integration Office, Ross Kelly

DOE

PROGRAM(s): The Office of Nuclear Material and Facility Stabilization program is to stabilize nuclear materials and spent nuclear fuel and prepare them for eventual disposal in a manner that protects people and the environment and to deactivate excess contaminated facilities in a timely manner to reduce risk associated with maintaining aged facilities and to reduce out-year mortgages. This office also has site coordination responsibilities for Savannah River and Rocky Flats, and responsibility for K-Basins and the Plutonium Finishing Plant at Richland.

OFFICE

PROGRAM(s): **Site and Facilities security:** To prevent the theft of nuclear materials (deny) and have the capability to search/pursue, contain, and apprehend person(s) and recapture/recover any stolen nuclear materials and support a core program of nuclear nonproliferation activities.

AREA OF

OPERATIONS: Savannah River Site, South Carolina

SURVEY RESULTS:

The Office of Program Integration is responsible for ensuring site and facility security is adequate to ensure the threat of theft of nuclear materials is prevented. The Savannah River Site (SRS) is located in area that is surrounded by heavily wooded and swampy terrain. Due to the diverse environment at SRS, rotorcraft aircraft are employed to patrol and secure the site. The program-level office does not have any specific customer requirements. It relies on SRS to determine specific requirements to meet this program. EM-62 does require the flight crews to hold Q-clearances and have a thorough background in night vision goggle operations.

SUGGESTIONS:

This customer should collaborate with the Office of Aviation Management, in collaboration with SRS and NVO in conducting a fleet modernization study to determine the feasibility of standardizing the rotorcraft fleet. Cost savings and economies of aviation assets may be realized if a standardized helicopter fleet could be adopted.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: EM-62, Program Integration Office

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (Flight Hours)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Patrol (security)	EM-62 SRS							See SRS Summary Table.
Aerial Patrol (security)								
Mission (travel)	EM-62 SRS							See SRS Summary Table.
Transportation of personnel and cargo								

CUSTOMER REQUIREMENTS: Refer to SRS for specific requirements.

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE OPERATIONS SUMMARY

LEAD PROGRAM SECRETARIAL OFFICE: Science

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Fermi National Accelerator Laboratory (FERMI)
DOE-CH, Aviation Program Manager, Karl Moro
FERMI Group, Acting Manager, Robert Wunderlich
FERMI, Environmental Safety and Health Section, Rafael Coll

DOE

PROGRAM(s): **Science:** The DOE is the third largest government sponsor of basic research in the United States, principally through programs managed by the Office of Science. The mission of the Office of Science is to advance basic research and the instruments of science that are the foundations for DOE's applied missions, a base for U.S. technology innovation, and a source of remarkable insights into our physical and biological world and the nature of matter and energy.

In service to DOE 's applied missions in energy resources, environmental quality, and national security, Office of Science programs leads the nation in many areas of the physical and computational sciences, and contribute significantly to major advances in biological research. These programs extend the frontiers of basic scientific knowledge—DOE and its predecessor agencies have supported the award-winning scientific research of 68 Nobel Laureates from 1934 through 1998.

Environmental Quality: Site restoration is the process by which contaminated sites and facilities are identified, characterized, and existing contamination is contained or removed and disposed to allow beneficial reuse of the property. The DOE Environmental Restoration Program is involved in assessment and cleanup activities at 132 sites throughout the United States.

OFFICE

PROGRAM(s): Fermi National Accelerator Laboratory advances the understanding of the fundamental nature of matter and energy by providing leadership and resources for qualified researchers to conduct basic research at the frontiers of high energy physics and related disciplines.

AREA OF

OPERATIONS: CONUS and Alaska

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE OPERATIONS SUMMARY

SURVEY RESULTS:

FERMI conducts deer population counts within the boundaries of its facilities for biological assessment and research that requires access to charter aircraft. They also use aircraft to conduct aerial photography and aerial surveys for engineering topographical purposes. Aerial photography supports FERMI's environmental and site maintenance responsibilities.

The CAPS Phase One Team determined that FERMI made arrangements with commercially owned and operated aviation service providers to meet the identified needs. In addition, the mission and aircraft currently supporting this mission are justified and the use of aircraft has been verified by the Team.

SUGGESTIONS:

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS SUMMARY**

CUSTOMER REQUIREMENTS: FERMI, Environmental Management and Site Maintenance

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE to Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure Point	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Environmental restoration and site maintenance and facility support.	EM CH FERMI	Single turbine engine, Rotorcraft	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SL-12,500 MSL	No	None, scheduled events.	400 pounds camera equipment and 1 personnel	4 hrs.
Aerial photography				Must have camera mounts or other photographic equipment installed or available as described in FERMI statement of work.				
Biological surveys for deer population within the FERMI site	EM CH FERMI	Single turbine engine, Rotorcraft	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SL-12,500 MSL	No	None, scheduled events.	440 pounds 2 personnel	4 hrs.
Aerial surveys				None.				

CUSTOMER REQUIREMENTS:

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: Environmental Quality

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Idaho Operations Office, DOE-ID
DOE-ID, Aviation Manager, Jay Greenberg
DOE-ID, Emergency Response Division, Steve Morreale

DOE

PROGRAM(s): **Environmental Quality:** The Office of Environmental Restoration was created within the newly established Office of Environmental Management (EM) to consolidate, centralize and promote the cleanup of contaminated waste sites and surplus facilities within the DOE Complex.

OFFICE

PROGRAM(s): Idaho National Engineering and Environmental Laboratory (INEEL) was initially established by the Federal government as the National Reactor Testing Station in 1949. Its purpose was to provide an isolated location where prototype nuclear reactors could be designed, built, and tested. Most of the reactors were phased out after completing their research mission; only the Advanced Test Reactor and the Advanced Test Reactor Critical Facility are now operating. Programmatic emphasis has shifted away from reactor development and defense-related work toward multi-program research, hazardous and radioactive waste management, cleanup, and environmental technology development. In January 1997, the Idaho National Engineering Laboratory changed its name to the Idaho National Engineering and Environmental Laboratory (INEEL) to highlight Idaho's role in developing waste-cleanup and other environmental technologies.

AREA OF OPERATIONS: CONUS

SURVEY RESULTS:

The DOE-ID and INEEL through its contractors use aircraft in support of their broader program of environmental restoration of the INEEL Site. DOE-ID and its contractors use aircraft from commercial operators located at Pocatello, Boise, and Driggs, Idaho for aerial photography, biological aerial surveys, and transportation of personnel. In addition, DOE-ID uses aircraft from other DOE organizations such as, DOE-Nevada Operations Office (DOE-NV) and DOE-Albuquerque Operations Office (DOE-AL) to transport personnel for official travel. It was noted that DOE-ID has a Radiological Assistance Program responsibility to move personnel and cargo on short notice in case of an emergency involving nuclear materials accidents.

SUGGESTIONS:

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: DOE-ID Idaho Operations Office

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Official Travel and travel related to DOE-ID activities	EM-40 ID	Fixed wing multi-engine turbo-prop, pressurized	3 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	None, scheduled events.	1,320 pounds	10 hrs.
Transportation of personnel and cargo				14 CFR Part 135 certification.				
Emergency Response, Radiological Assistance Program Team	SO-42	Fixed wing multi-engine turbo-jet or multi-engine turbo-prop, pressurized	3 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	4 hours	2,250 pounds	0 hrs.
Transportation of personnel and cargo				14 CFR Part 135 certification.				
Aerial survey for biological research and biological assessments (Elk counts, etc.)	EM ID	Fixed wing single engine piston	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL (Conduct of operations VMC)	No	None, scheduled events.	500 pounds	30 hrs.
Aerial survey				Special radio homing device for animal counts and tracking.				
Aerial photography site maintenance and site construction activities	EM ID	Rotorcraft single turbine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL (Conduct of operations VMC)	No	None, scheduled events.	500 pounds	15 hrs.
Aerial photography				Must have camera mounts and other photographic equipment as described in DOE-ID statement of work.				

CUSTOMER REQUIREMENTS:

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: National Security

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Kansas City Area Office (KCAO), Elizabeth Sellers

DOE

PROGRAM(s): **National Security:** The Department of Energy has important national security responsibilities. The Department maintains the safety, security and reliability of the U.S. nuclear weapons stockpile, without underground nuclear testing. The stockpile stewardship program is designed to replace nuclear testing by applying new scientific data and methods to maintain confidence in the stockpile. DOE will also provide the ability to reconstitute underground nuclear testing and nuclear weapons production capabilities as required to meet future national security requirement.

OFFICE

PROGRAM(s): **Maintenance of the Nuclear Stockpile:** Kansas City Plant (Allied Signal) Produce, procure non-nuclear components (electrical, electronic, mechanical) conduct surveillance testing on and repair non-nuclear components.

AREA OF

OPERATIONS: CONUS

SURVEY RESULTS:

The KCAO requires air transportation to move components it produces in support of the Weapons Management Division at the Albuquerque Operations Office. The KCAO is responsible for overseeing the Kansas City Plant and ensuring the reliability and safety of the nuclear stockpile by producing essential components necessary to maintain the nuclear stockpile. At the KCAO there are no specific requirements that could be determined that would aid in the identification of the size or type of aircraft required to support this program. This transportation program is performed by contractors operating government-owned aircraft for operations conducted within the Continental United States (CONUS) from the Albuquerque Operations Office.

SUGGESTIONS:

Refer to the Albuquerque Operations Office appendix for more details of this mission and suggestions.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Kansas City Area Office

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Nuclear Stockpile Stewardship. Maintenance and inspection of the nuclear stockpile under civilian control. Transportation of special components and other items.	DP-20 AL AAO ORO SRS							See DOE-AL Summary Table.
Transportation of mission personnel and cargo								

CUSTOMER REQUIREMENTS:

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: National Security

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Los Alamos Area Office (LAAO), Manager, Phillip Romero
LAAO, Safety and Health Team Leader, Rudy Valdez
Los Alamos National Laboratory (LANL), Team Leader, Guy Sundowsky
LANL, Deputy Group Leader, Steve Wallin
LANL, Nonproliferation and International Security (NIS-9), David Chamberlin
LANL, NIS- 7, Rob Wittaker

DOE PROGRAM(s): **National Security:** The Department of Energy is responsible for the United States government's research and development functions for monitoring nuclear explosions. This responsibility includes the November 1993 transfer of the Department of Defense's Research and Development responsibility to DOE. The DOE research program builds on the broad base of US expertise developed historically and focuses research and development on detecting, locating, identifying, and characterizing nuclear explosions in all environments.

National Security Emergency Response: The DOE has the world's leading scientists, engineers and technicians from over 50 years of managing the nation's nuclear weapons program. When the need arises, DOE is prepared to respond immediately to any type of radiological accident or incident anywhere in the world with seven radiological emergency response assets.

Environmental Quality: The Office of Environmental Restoration was created within the newly established Office of Environmental Management (EM) to consolidate, centralize and promote the cleanup of contaminated waste sites and surplus facilities within the DOE Complex.

Science: The Department of Energy (DOE) is the third-largest government sponsor of basic research in the United States, principally through programs managed by the Office of Science. The mission of the Office of Science is to advance basic research and the instruments of science that are the foundations for DOE's applied missions, a base for U.S. technology innovation, and a source of remarkable insights into our physical and biological world and the nature of matter and energy.

OFFICE PROGRAM(s): Los Alamos National Laboratory's central program is enhancing the security of nuclear weapons and nuclear materials worldwide. Our statutory responsibility is the stewardship and management of the nuclear stockpile. This requires a solid foundation in science and state-of-the-art technology. Partnering with universities and industry is critical to our success. Carefully selected civilian research and development programs complement our mission. Enhancing global nuclear security involves five areas.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

1. Stockpile Stewardship ensures that the U.S. has safe, secure, and reliable nuclear weapons.
2. Stockpile Management provides capabilities ranging from dismantling to manufacturing of the enduring stockpile.
3. Nuclear Materials Management ensures the availability and safe disposition of plutonium, highly enriched uranium, and tritium.
4. Nonproliferation and Counter-proliferation help to deter, detect, and respond to the proliferation of weapons of mass destruction.
5. Environmental Stewardship provides for the remediation and reduction of wastes from the nuclear weapons complex.

AREA OF OPERATIONS: CONUS and OCONUS

SURVEY RESULTS:

LANL, like many of the National Laboratories is unique in the types of programs supported by DOE-owned, contractor-operated, and military aircraft. In addition, LANL provides technical and project oversight of the Waste Isolation Pilot Plant (WIPP) which requires occasional visits by LANL personnel.

Nonproliferation and International Security (NIS) at LANL assists the Office of Research and Development's program. Aircraft are justified based on the need to develop airborne sensors and equipment for National Security programs. Flight crews will require a Q security clearance and background in aircraft flight test and safety analysis. Aircraft in service to this program require extensive airframe alterations and modifications of aircraft systems to accommodate sensors and equipment, which would limit commercially owned and operated aircraft from this activity. Most of the research activity involves aircraft that have unpressurized hulls, making modifications to airframes a much simpler process. The normal operating altitude is below 12,500 feet mean sea level. However, there is clearly a need for an aircraft capable of flight to an altitude of 40,000 feet mean sea level able to carry a 2500 pound payload and remain at that altitude for a minimum of 3 hours. This type of aircraft activity would prohibit commercial operators from competing for this work, again, due to the modifications of to the airframes of aircraft costing millions of dollars.

LANL also requires aircraft to support its emergency response transportation needs. It was determined through interviews that most of the transportation support comes from the Albuquerque Operations Office. However, due to take-off limitations from Los Alamos airport many of the emergency transportation needs cannot be met with AL aircraft, except with the Beech 200 models. The Los Alamos airport is capable of handling a military C-130 multi-engine turbine propeller fixed wing aircraft and has been used in the past.

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE OPERATIONS OFFICE SUMMARY

In conducting the interviews with LANL personnel the CAPS Phase One Team determined the latest aircraft acquired by DOE-AL , a turbine jet Gulfstream II cannot land at the Las Alamos airport. This leads the CAPS Phase One Team to a determination that cost analysis of the existing DOE-AL and LANL transportation requirements is required.

SUGGESTIONS:

The Office of Aviation Management in collaboration with NN-20, Sandia National Laboratory, Los Alamos National Laboratory, Lawrence Livermore National Laboratory, Pacific Northwest Laboratory, Albuquerque and the Nevada Operations Office conduct an OMB A-76 cost analysis. The cost analysis should look at establishing a central clearing house for research aircraft activities to increase utilization and the need to acquire additional aircraft in support of this program.

DOE-AL in collaboration with the Office of Aviation Management and Office of Nuclear Weapons Management should conduct an OMB Circular A-76 cost analysis to determine the proper mix of aircraft needed to adequately meet its current and future program requirements.

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Los Alamos National Laboratory

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (Flight Hours)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Official Travel and travel related to WIPP activities	EM-60 AL LAAO	Fixed wing multi-engine turbo-prop, pressurized	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	None, scheduled events.	6,250 pounds and baggage	8 hrs.
Transportation of passengers and cargo				14 CFR Part 135 certification.				
Aerial photography site maintenance and site construction activities	EM AL LAAO	Fixed wing single engine piston or Rotorcraft single turbine engine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL (Conduct of operations VMC)	No	None, scheduled events.	500 pounds equipment and 1 personnel	2 hrs.
Aerial photography				Forward Looking Infra-red (FLIR) camera required for certain rotorcraft photography flights. Aircraft must have video and camera equipment installed or available.				(Fixed wing) 15 hrs. (Rotorcraft)
Aerial survey for biological research and biological assessments (Deer counts, sheep counts, etc.)	EM AL LAAO	Fixed wing single engine piston	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL (Conduct of operations VMC)	No	None, scheduled events.	500 pounds equipment and 1 personnel	0 hrs.
Aerial survey				None.				
Develop Technologies in support of nuclear nonproliferation activities.	NN-20 DoD	Fixed wing turbo-jet or multi-engine turbo-prop	4 hours plus IFR reserves	Capable of instrument navigation within NAS, SL - 35,000 MSL	Yes, enroute No, during mission	None, scheduled events.	4,880 pounds of instruments, sensors, etc., and 4 personnel	100 hrs.
Research and development (sensors)				Extensive modifications to airframe to accommodate lateral and downward views through special glass. Modifications to electrical system to accommodate additional electrical appliances.				
Develop Technologies in support of nuclear nonproliferation activities.	NN-20 DoD	Fixed wing piston engine, Remotely Piloted Aircraft (RPA) or Unmanned Air Vehicle (UAV)	10 hours	Capable of instrument navigation within NAS, SL - 65,000 MSL	No	None, scheduled events.	350 pounds Sensors and equipment only	50 hrs.
Research and development (sensors)				Mission requires the demonstration of concept by installing equipment on RPA/UAV.				
Develop Technologies in support of nuclear nonproliferation activities.	NN-20 DoD	Fixed wing single engine piston	2 hours plus VFR reserves	Capable of navigation in NAS, SL - 12,500 MSL	No	None, scheduled events.	500 pounds Instruments and 1 personnel	50 hrs.
Research and development (sensors)				Some modifications to airframe to accommodate instruments pod.				

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Los Alamos National Laboratory

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (Flight Hours)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Emergency Response Accident Response Group (ARG) Phase One	SO-42 AL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-40,000 MSL	Yes	4 hours	860 pounds 3 personnel with 200 pounds of cargo	12 hrs.
Transportation of personnel and cargo				None. LANL team joins up in Albuquerque with other personnel.				
Emergency Response Accident Response Group (ARG) Phase Two	SO-42 AL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-40,000 MSL	Yes	6 hours	45,280 pounds 24 personnel with 40,000 pounds of cargo	0 hrs. (DoD Aircraft) or DC-9s
Transportation of personnel and cargo				None. LANL team joins up in Albuquerque with other personnel.				
Emergency Response Accident Response Group (ARG) Phase Three	SO-42 AL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-40,000 MSL	Yes	8 hours	36,600 pounds 30 personnel with 30,000 pounds of cargo	0 hrs. (DoD Aircraft) or DC-9s
Transportation of personnel and cargo				None. LANL team joins up in Albuquerque with other personnel.				
Emergency Response Radiological Assistance Program (RAP)	SO-42 AL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-40,000 MSL	Yes	2 hours (Within region)	2,250 pounds 250 cargo and 8 personnel	12 hrs.
Transportation of personnel and cargo				None. LANL team joins up in Albuquerque with other personnel.				

CUSTOMER REQUIREMENTS: Need for data security involving GPS and navigation position information. Aircrew will need Q clearances.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: National Security

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Oakland Operations Office (DOE-OAK), Aviation Manager: Douglas Eddy
Lawrence Berkeley National Laboratory (LBNL), Aviation Point of Contact: Don Van Acker
LBNL, Procurement Specialist: Roberta Spalding

DOE

PROGRAM(s): **Science:** The Department of Energy (DOE) is the third-largest government sponsor of basic research in the United States, principally through programs managed by the Office of Science. The mission of the Office of Science is to advance basic research and the instruments of science that are the foundations for DOE's applied missions, a base for U.S. technology innovation, and a source of remarkable insights into our physical and biological world and the nature of matter and energy.

OFFICE

PROGRAM(s): As the national laboratory with the longest history, Berkeley Lab has been a pioneer of interdisciplinary science. Today one of the DOE's multi program national labs, Berkeley Lab attacks problems of scale (high-performance computing, environment, energy, energy efficiency, mapping the human genome), usually through coordinated interdisciplinary research. Berkeley Lab maintains and operates unique national facilities, and serves as a focal point for academia and industry to combat the issues facing U.S. science and technology today.

AREA OF

OPERATIONS: LBNL Facilities, located near the University of California Berkeley.

SURVEY RESULTS:

LBNL utilizes aircraft only for site maintenance and documentation. The aerial photography is to document the vegetation load for fire prevention and control, and for historical site documentation.

SUGGESTIONS:

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Lawrence Berkeley National Laboratory

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure Point	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Aerial photography site maintenance and site construction activities	EM	Rotorcraft single turbine engine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL (Conduct of operations VMC)	No	None, scheduled events.	500 pounds 60 pounds equipment and 2 personnel	8 hrs.
Aerial photography				Camera mounts installed or camera equipment available for use.				

CUSTOMER REQUIREMENTS:

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: National Security

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Oakland Operations Office (DOE-OAK), Aviation Manager: Douglas Eddy
DOE-OAK, Livermore Safety Oversight Division: Mike Cornell
Lawrence Livermore National Laboratory (LLNL): Barbara Eccher

DOE

PROGRAM(s): **National Security:** The Department of Energy is responsible for the United States government's research and development functions for monitoring nuclear explosions. This responsibility includes the November 1993 transfer of the Department of Defense's Research and Development responsibility to DOE. The DOE research program builds on the broad base of US expertise developed historically and focuses research and development on detecting, locating, identifying, and characterizing nuclear explosions in all environments.

National Security Emergency Response: The DOE has the world's leading scientists, engineers and technicians from over 50 years of managing the nation's nuclear weapons program. When the need arises, DOE is prepared to respond immediately to any type of radiological accident or incident anywhere in the world with seven radiological emergency response assets.

Environmental Quality: The Office of Environmental Restoration was created within the newly established Office of Environmental Management (EM) to consolidate, centralize and promote the cleanup of contaminated waste sites and surplus facilities within the DOE Complex.

Science: The Department of Energy (DOE) is the third-largest government sponsor of basic research in the United States, principally through programs managed by the Office of Science. The mission of the Office of Science is to advance basic research and the instruments of science that are the foundations for DOE's applied missions, a base for U.S. technology innovation, and a source of remarkable insights into our physical and biological world and the nature of matter and energy.

OFFICE

PROGRAM(s): LLNL's primary program is to ensure that the nation's nuclear weapons remain safe, secure, and reliable and to prevent the spread and use of nuclear weapons worldwide. Livermore's programs in advanced defense technologies, energy, environment, biosciences, and basic science apply to the Laboratory's unique capabilities, and to enhance the competencies needed for our national security program. Lawrence Livermore serves as a resource to U.S. government and as a partner with industry and academia.

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE OPERATIONS OFFICE SUMMARY

Lawrence Livermore efforts are directed at demonstrating effective environmental remediation technologies, advancing the science base for environmental regulation, and modeling accurately regional weather and global climate conditions. Activities include: Global & Regional Climate Modeling R&D on climate and atmospheric processes--model development, intercomparison, and validation.

National Atmospheric Release Advisory Center Near-real-time modeling to assist emergency response if radioactive or toxic materials are released.

AREA OF OPERATIONS:

CONUS and OCONUS

SURVEY RESULTS:

LLNL, like many of the national laboratories is unique in the types of programs and missions supported by DOE owned, contractor operated, and military aircraft.

LLNL is a key DOE National Security Operations Office with a mission that requires access to DOE fleet aircraft, charter aircraft, or DoD aircraft to be available for transportation on demand 24 hours a day, seven days a week throughout the year.

The CAPS Phase One Team determined that LLNL does have commercially owned and operated aircraft service companies identified that meet their emergency response mission requirements. LLNL plans on using commercial air and DoD assets to meet some deployments if required. In addition, the aircraft currently supporting this mission are justified and the use of aircraft has been verified by the CAPS One Team.

SUGGESTIONS:

The Office of Aviation Management in collaboration with NN-20, SC-70, Sandia National Laboratory, Los Alamos National Laboratory, Lawrence Livermore National Laboratory, Pacific Northwest National Laboratory, and the Nevada Operations Office should conduct an OMB A-76 cost study. The cost study should look at establishing a central clearing house for research aircraft activities to increase utilization and investigate the need to acquire additional aircraft in support of the Nuclear Nonproliferation R&D Program.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Lawrence Livermore National Laboratory

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure Point	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Emergency Response Joint Technical Operations Team (JTOT I)	SO-42	Fixed wing turbo-jet or multi engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI-35,000 MSL.	Yes	4 hours	1,500 pounds 6 personnel	24 hrs.
Transportation of personnel and cargo				None.				
Emergency Response Joint Technical Operations Team (JTOT II)	SO-42	Fixed wing turbo-jet or multi engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI-35,000 MSL.	Yes	6 hours	32,700 pounds 25,000 pounds cargo and 31 personnel	24 hrs.
Transportation of personnel and cargo				None.				
Aerial photography site maintenance and site construction activities	EM	Fixed wing single engine piston	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL (Conduct of operations VMC)	No	None, scheduled events.	500 pounds 100 pounds equipment and 1 personnel	15 hrs.
Aerial photography				Airframe modified for belly camera.				
Develop Technologies in support of nuclear nonproliferation activities.	NN-20	Fixed wing turbo-jet or multi engine turbo-prop	4 hours plus IFR reserves	Capable of navigation within NAS, SL - 35,000 MSL	Yes, in route	None, scheduled events.	8,500 pounds Instruments and 10 personnel	See NN-20 Summary Table.
Research and development (sensors)				Extensive modifications to airframe to accommodate lateral and downward views through special glass. Modifications to electrical system to accommodate additional electrical appliances.	No, during mission			
Develop Technologies in support of nuclear nonproliferation activities.	NN-20	Fixed wing turbo-jet or multi engine turbo-prop	4 hours plus IFR reserves	Capable of navigation within NAS, SL - 35,000 MSL	Yes, in route	None, scheduled events.	2,250 pounds Instruments and 1 personnel	135 hrs.
Research and development (sensors)				Extensive modifications to airframe to accommodate lateral and downward views through special glass. Modification to electrical system to accommodate additional electrical appliances.	No, during mission			
Atmospheric Radiation (solar) Measurements (ARM) Program, atmospheric research. High altitudes	SC-74 NASA	Fixed wing turbo-jet	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI.-60,000 MSL	Yes	None, scheduled events.	2,000 pounds 1,250 pounds of installed equipment and 3 personnel	See SC-74 Summary Table.
Aerial survey		Remotely piloted aircraft (RPA)	12 hours plus VFR reserves	(Conduct of operations usually above 45,000 ft. to 60, 000 ft. MSL)	No for the RPA			

CUSTOMER REQUIREMENTS:

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: Departmental Staff and Support

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

MA-8, Office of Scheduling and Advance: Isabelle Watkins

MA-10, Office of Aviation Management: Brian Dean

DOE

PROGRAM(s): The Office of Management and Administration provides the Department best value, high-quality, and timely products and management services. It provides these in the areas of administration, human resources and training, information management, performance excellence, procurement assistance, executive secretariat support and in response to Secretarial initiatives.

OFFICE

PROGRAM(s): Schedule and provide reliable, safe, cost effective transportation to Headquarters elements.

AREA OF

OPERATIONS: CONUS and OCONUS

SURVEY RESULTS:

The Department provides the framework for a comprehensive and balanced national energy plan by coordinating and administering the energy functions of the federal government. The Department is responsible for long-term, high-risk research and development of energy technology, Federal power marketing, energy conservation, the nuclear weapons program, energy regulatory programs, and a central energy data collection and analysis program. Because of this diverse mission Senior DOE officials are required to travel, both within the United States and internationally, to administer and participate in key Departmental business with other government officials. When required, a cost analysis is conducted to ensure that the air transportation provided is the most cost effective to the public and in compliance with applicable laws. These transportation needs are mostly supplied by commercially owned and commercially operated aircraft. However, when costs are justified under OMB Circular A-126 processes, DOE- or other Federally owned aircraft are used for this transportation.

MA-8 schedules official and mission-related travel in support of the management of the DOE. MA-10 arranges air transportation, other than scheduled air carriers, for all Headquarters offices for official and mission-related travel. MA-10 conducts the cost comparisons when required by OMB Circular A-126 and ensures DOE policies are followed in the acquisition and use of DOE-owned and -chartered aircraft. Charter aircraft are typically procured on an individual basis from local vendors. While competitively bid, the CAPS Phase One Team believes that additional savings may be realized if a single, Nation-wide aircraft charter vendor was selected to support this program.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

SUGGESTIONS:

It is essential for Laboratories, Operation Offices, and Program Offices to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, charter aircraft vendor list.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: MA-8, Office of Scheduling and Advance; MA-10, Office of Aviation Management

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (Flight Hours)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Official Travel (OCONUS)	DOE	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI-35,000 MSL.	Yes	None, scheduled events.	2,500 pounds 10 personnel with cargo	100 hrs.
Transportation of personnel and cargo				Crew compliment and qualification as per 14 CFR Part 121.				
Official Travel (CONUS)	DOE	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI-35,000 MSL.	Yes	None, scheduled events.	2,250 pounds 9 personnel with cargo	100 hrs.
Transportation of personnel and cargo				Two pilots, qualified and current under 14 CFR Part 135.				
Official Travel	DOE	Rotorcraft, twin turbine	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SI-12,500 MSL.	No	None, scheduled events.	1,750 pounds 7 personnel and cargo	50 hrs.
Transportation of personnel and cargo				Two pilots, qualified and current under 14 CFR Part 135.				

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: Energy Resources

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

NE- 20, Office of Technology: John Stamos

NE -50, Office of Space and Power Systems Development: Earl Wahlquist

DOE

PROGRAM(s): The Space and Defense Radioisotope Thermoelectric Generator (RTG) Program provides support for radioisotope power source development, demonstration, testing, and delivery. Radioisotope power sources are the enabling technology for space applications requiring proven, reliable, and maintenance-free power supplies capable of producing up to several kilowatts of power and operating under severe environmental conditions for many years.

OFFICE

PROGRAM(s): Develop and provided nuclear power systems for use in space applications.

AREA OF

OPERATIONS: CONUS

SURVEY RESULTS:

The Office of Space and Power Systems Development has conducted a safety analysis that requires an emergency response capability during launches of space vehicles that have radioactive generators on-board. NE-50's emergency response capability will involve approximately 30 hours of flight time annually using DOE-NV AMS and DOE-AL transport of RAP personnel to missile launch sites.

The use of aircraft are justified for this program based on the safety analysis that was conducted. Refer to the Albuquerque and Nevada Operation Offices appendices for details concerning the continuing need of aircraft.

NOTE: NE-50 does not have a specific requirement for aircraft in support of its mission. NE-50 has to have an emergency response capability during space vehicle launches in the event of a launch accident. NE-50 has a MOA with SO-42 to provide a RAP personnel and the AMS to NE-50 during missile launches.

SUGGESTIONS:

None.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: NE-20, Office of Space and Power Systems Development

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Emergency Response	NE-20 NE-50	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	4 hours plus IFR reserves	Capable of navigation within NAS, SL - 35,000 MSL	Yes	None, scheduled events.	2,250 pounds 8 personnel and 250 pounds equipment	15 hrs.
Transport of mission personnel and cargo				None.				
Emergency Response	NE-20 NE-50	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	3 hours plus IFR reserves	Capable of navigation within NAS, SL - 35,000 MSL	Yes	None, scheduled events.	1,750 pounds 3 personnel and 1,000 pounds equipment	15 hrs.
Aerial survey (radiological)				Must have installed sensors for locating and measuring radiation sources.				

OTHER SPECIAL REQUIREMENTS: Aircrew will need Q-clearances.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY AND FOLLOW-UP QUESTIONS**

LEAD PROGRAM SECRETARIAL OFFICE: National Security

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

NN-20, Office of Research and Development, Richard Hastings

NN-20, Office of Research and Development, Daniel Beatty

DOE

PROGRAM(s): The Department of Energy is responsible for the United States government's research and development functions for monitoring nuclear explosions. This responsibility includes the November 1993 transfer of the Department of Defense's Research and Development responsibility to DOE. The DOE research program builds on the broad base of US expertise developed historically and focuses research and development on detecting, locating, identifying, and characterizing nuclear explosions in all environments.

OFFICE

PROGRAM(s): Oversees the unique capabilities that support a core program of nuclear nonproliferation activities and make efficient use of DOE's unique technical capability to support and develop advanced technologies aiding in the detection and countering emerging proliferation threats.

AREA OF

OPERATIONS: CONUS

SURVEY RESULTS:

The Office of Research and Development's program requires the use of aircraft. The aircraft are justified based on the need to develop airborne sensors and equipment for National Security programs. Flight crews will require a Q clearance and background in aircraft flight test and safety analysis. Aircraft in service to this program require extensive airframe alterations and modifications of aircraft systems to accommodate sensors and equipment, which would limit commercially owned and operated aircraft from this activity. Most of the research activity involves aircraft that have unpressurized hulls, making modifications to airframes a much simpler process. The normal operating altitude is below 12,500 feet mean sea level. However, there is clearly a need for an aircraft capable of flight to an altitude of 40,000 feet mean sea level able to carry a 2500 pound payload and remain at that altitude for a minimum of 3 hours. This type of aircraft activity would prohibit commercial operators from competing for this work, again, due to the modifications of to the airframes of aircraft costing millions of dollars.

The CAPS Phase One Team has determined there is a need for more research and development aircraft within the Department. The Department could achieve more program effectiveness and participation by increasing the Research and Development (R&D) fleet and coordinating R&D aircraft activities better.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY AND FOLLOW-UP QUESTIONS**

SUGGESTIONS:

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

The Office of Aviation Management in collaboration with NN-20, Sandia National Laboratory, Los Alamos National Laboratory, Lawrence Livermore National Laboratory, Pacific Northwest Laboratory, Albuquerque and the Nevada Operations Office conduct an OMB A-76 cost analysis. The cost analysis should look at establishing a central clearing house for research aircraft activities to increase utilization and the need to acquire additional aircraft in support of this mission.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY AND FOLLOW-UP QUESTIONS**

CUSTOMER REQUIREMENTS: NN-20, Office of Research and Development

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Develop Technologies in support of nuclear nonproliferation activities.	NN-20 DoD	Fixed wing turbo-jet or multi-engine turbo-prop	4 hours plus IFR reserves	Capable of navigation within NAS, SL - 35,000 MSL	Yes, enroute	None, scheduled events.	8,500 pounds	250 hrs.
Research and development (sensors)				Extensive modifications to airframe to accommodate lateral and downward views through special glass. Modifications to electrical system to accommodate additional electrical appliances.	No, during mission			
Develop Technologies in support of nuclear nonproliferation activities.	NN-20 DoD	Fixed wing turbo-jet or multi-engine turbo-prop	4 hours plus IFR reserves	Capable of navigation within NAS, SL - 35,000 MSL	Yes, enroute	None, scheduled events.	2,250 pounds	135 hrs.
Research and development (sensors)				Extensive modifications to airframe to accommodate lateral and downward views through special glass. Modification to electrical system to accommodate additional electrical appliances.	No, during mission			
Develop Technologies in support of nuclear nonproliferation activities.	NN-20 DoD	Fixed wing single engine piston	2 hours plus VFR reserves	Capable of navigation in NAS, SL - 12,500 MSL	No	None, scheduled events.	500 pounds	20 hrs.
Research and development (sensors)				Some modifications to airframe to accommodate instruments pod.				
Develop Technologies in support of nuclear nonproliferation activities.	NN-20 DoD	Fixed wing piston, two-stage turbo-charged	6 hours plus VFR reserves	Capable of navigation in NAS, SL - 60,000 MSL	No	None, Scheduled events.	250 pounds	50 hrs.
Research and development (sensors)				Remotely Piloted Aircraft (RPA). See PNNL Summary Table.				

OTHER SPECIAL REQUIREMENTS: Need for data security involving GPS and navigation position information. Aircrew will need Q clearances.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: National Security

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Nevada Operations Office (NVO), Kathy Carlson, Operations Manager
NVO, Don Elle, Emergency Response
NVO, Gary Snodgrass, Aviation Manager

DOE

PROGRAM (s): **National Security, Emergency Response:** The Department of Energy has important national security responsibilities by law and Presidential Directive. The DOE has the world's leading scientists, engineers and technicians from over 50 years of managing the nation's nuclear weapons program. DOE must be prepared to respond immediately to any type of radiological accident or incident anywhere in the world with seven radiological emergency response assets, if the need arises. Refer to SO-42 appendix.

National Security, Nevada Test Readiness: The Department maintains the safety, security and reliability of the U.S. nuclear weapons stockpile, without underground nuclear testing. The stockpile stewardship program is designed to replace nuclear testing by applying new scientific data and methods to maintain confidence in the stockpile. DOE will also provide the ability to reconstitute underground nuclear testing and nuclear weapons production capabilities as required to meet future national security requirement. Refer to DP-10/132 appendix.

National Security, Nonproliferation: The Department of Energy is responsible for the United States government's research and development functions for monitoring nuclear explosions. This responsibility includes the November 1993 transfer of the Department of Defense's Research and Development responsibility to DOE. The DOE research program builds on the broad base of US expertise developed historically and focuses research and development on detecting, locating, identifying, and characterizing nuclear explosions in all environments. Refer to NN-20 appendix.

Environmental Quality: The Office of Environmental Restoration was created within the newly established Office of Environmental Management (EM) to consolidate, centralize and promote the cleanup of contaminated waste sites and surplus facilities within the DOE Complex. Refer to EM-40 appendix.

OFFICE

PROGRAM(s): DOE Nevada maintains the capability at the Nevada Test Site and other facilities and sites to implement DOE initiatives in stockpile stewardship, crisis management, waste management, environmental management, nondefense research and development, and work for others; as well as supporting other DOE programs.

Test Readiness: Nevada Test Site Readiness

Emergency Response: To provide the ability to respond to nuclear threats and nuclear accidents for the United States. DOE's NVO radiological emergency response

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE OPERATIONS OFFICE SUMMARY

assets include the Aerial Measuring System (AMS), the Accident Response Group (ARG), the Federal Radiological Monitoring and Assessment Center (FRMAC), the Nuclear Emergency Search Team (NEST), and the Radiological Assistance Program (RAP).

Facilitate management of radioactive waste in a safe and compliant manner to ensure the integrity of the Nevada Test Site disposal operations while maintaining the protection of the public, worker, and the environment.

Working with the National Laboratories and Office of Nonproliferation provides aerial platforms for the development of sensors and other radiological equipment.

Provide a singularly unique Federal asset, the Aerial Measurement Systems, to other Federal Agencies, such as, Nuclear Regulatory Commission, Environmental Protection Agency, etc., in conducting multispectral radiological survey assessments.

AREA OF

OPERATIONS: CONUS and OCONUS

SURVEY RESULTS:

NVO aviation assets are essential to the accomplishment of NVO's programs. The Aerial Measurements Systems (AMS) aviation assets are essential because there is no other method currently or in the foreseeable future that provides this unique capability to conduct accurate aerial radiological assessment in a timely manner. Nor are there any commercially available sources or government capabilities outside of NVO, that can conduct the multispectral radiological analysis. The Nuclear Regulatory Commission and the Environmental Protection Administration rely on NVO to conduct the AMS Multispectral Program throughout the CONUS. In addition, the timeliness of the information generated by the AMS in a crisis or emergency situation is key to DOE's successful consequence management responsibilities in the event of a nuclear accident or threat. The AMS mission requires flight crews, mission equipment, aircraft, and mission personnel to be available twenty-four hours a day, seven days a week, 365 days a year.

The NVO aviation assets are either Federally owned and contractor operated or contractor-owned and contractor-operated. There is a Memorandum Of Understanding (MOU) between the DOE Defense Programs Office and the Department of Defense for large military transport aircraft in the event of a large or OCONUS nuclear emergency response.

NVO has a performance based Management and Operations contractor that is a joint venture between Bechtel, Incorporated (Inc.), Lockheed Martin, Inc. and Johnson Controls, Inc. Johnson Controls has the responsibility among the joint venture partners to manage and operate the DOE-owned aircraft. Because of the performance relationship between NVO and the joint venture partners it would not be in the best interest of DOE to separate the aviation contractor from Bechtel, Inc. If the aviation management were separated and replaced by a NVO prime contractor it would be difficult to hold Bechtel responsible for the overall contact performance. Therefore,

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

any OMB A-76 cost analysis concerning cost efficiencies or DOE fleet modernizations should remain with NVO and the joint venture partners and not with a DOE-wide OMB A-76 cost study.

SUGGESTIONS:

The Secretary and Congress should recognize the Aerial Measurements Systems multispectral system is a unique Federal asset that should be supported and funded. The expertise that DOE has in developing and utilizing this type equipment, along with the personnel capable of analyzing the data, is necessary to assess environmental quality of government-owned and commercial facilities.

The CAPS Phase One Team recommends that NVO in collaboration with the Defense Program Office and the Office of Aviation Management conduct a simplified OMB A-76 cost analysis to modernize and standardize the NVO fleet of aircraft. The CAPS Phase One Team believes that cost efficiencies could be obtained by conducting a fleet modernization analysis.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: TEST READINESS - NEVADA TEST SITE

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)	
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS					
Official Travel and travel related to NTS activities	DP-10 NVO	Rotorcraft twin engine turbine, 12,500 pounds GW	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SL-12,500 MSL	Yes	None, scheduled events.	1,980 pounds	10 hrs.	
Transportation of personnel and cargo				None.					
Aerial survey for radiological assessments	DP-10 NVO	Fixed wing multi-engine turbo-prop, pressurized	3 hours plus IFR reserves	Capable of navigation within the NAS-SL-35,000 MSL [Fixed wing]	Yes	None, scheduled events.	1,500 pounds	38 hrs.	
Aerial survey		Rotorcraft twin turbine 12,500 pounds GW	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL [Rotorcraft]	Yes				1,000 pounds installed equipment and 3 personnel
Aerial multispectral (radiological and photography) surveys for site maintenance	DP-10 NVO	Fixed wing turbo-jet	4 hours plus IFR reserves	Capable of navigation within the NAS-SL-45,000 MSL [Fixed wing turbo-jet]	Yes	None, scheduled events.	1,500 pounds	11 hrs.	
Aerial survey/photography		Multi engine turbo-prop, pressurized	4 hours plus IFR reserves	Capable of navigation within the NAS-SL-35,000 MSL [Fixed wing turbo-prop]	Yes				1,000 pounds installed equipment and 3 personnel
		Rotorcraft twin turbine 12,500 pounds GW	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL [Rotorcraft]	No				
Security patrols must be done during weapons test to ensure no intruders are near site.	DP-10 NVO	Rotorcraft twin turbine 12,500 pounds GW	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SL-35,000 MSL	No	None, scheduled events.	1,500 pounds	16 hrs.	
Patrol (security)				Conduct of operations VMC					Airframe and electrical systems modified and altered in accordance with FAA regulations. (CCTV Installation)
NTS infrastructure maintenance requires powerline patrols to ensure reliable source of power.	DP-10 NVO	Rotorcraft single turbine, 6,500 pounds GW	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SL-12,500 MSL	No	None, scheduled events.	250 pounds	22 hrs.	
Patrol (powerline)				Conduct of operations VMC					Wire cutters installed and experienced crews.

CUSTOMER REQUIREMENTS: DOE-NVO, Emergency Response

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Consequence Management Official/Consequence Management planning Team	SO-42 NVO	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	6 hours	2,250 pounds 9 personnel	12 hrs.
Transportation of personnel and cargo				None.				
Consequence Management (CMO) FRMAC I	SO-42 NVO	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	4 hours	5,250 pounds 1,500 pounds cargo and 15 personnel	36 hrs.
Transportation of personnel and cargo				None.				
Consequence Management (CMO) FRMAC II	SO-42 NVO	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	11 hours after notification within CONUS.	50,000 pounds 35,000 pounds cargo and 60 personnel	12 hrs.
Transportation of personnel and cargo				None.				
Consequence Management (CMO) Accident Response Group (ARG) Phase II and III	SO-42	Fixed wing turbo-jet or multi engine turbo-prop, pressurized						See SO-42 Appendix
Transportation of personnel and cargo								
Consequence Management (CMO) Aerial Measurement Systems Low Altitude- radiological- (AMS)	SO-42 NVOO	Rotorcraft turbine-twin	2.5 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-12,500 MSL (conduct of operations 100 ft. AGL - 1500 ft. AGL)	No	4 hours after notification within CONUS. Aircraft located on East Cost and in Nevada.	2,030 pounds 1,150 pounds installed equipment and 3 personnel	465 hrs.
Aerial survey				Modifications to airframe and electrical system required to accommodate sensors.				
Consequence Management (CMO) AMS Low to Mid Altitude- radiological	SO-42 NVO	Fixed wing multi-engine turbo-prop, pressurized	3 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL (conduct of operations 500 ft. AGL - 5000 ft. AGL)	Yes	4 hours after notification within CONUS. Aircraft located on East Cost and in Nevada.	2,030 pounds 1,150 pounds installed equipment and 3 personnel	177 hrs.
Aerial survey				Modifications to airframe and electrical system required to accommodate sensors.				
Consequence Management (CMO) AMS High Altitude-multispectral (radiation and photographic)	DOE NRC EPA FEMA	Fixed wing turbo-jet	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-45,000 MSL (Conduct operations VMC)	Yes	10 hours after notification within CONUS.	2,030 pounds 1,150 pounds installed equipment and 3 personnel	50 hrs.
Aerial survey/photography				Modifications to airframe and electrical system required to accommodate sensors.				

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY

CUSTOMER REQUIREMENTS: DOE-NVO, Emergency Response

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Nuclear Emergency Search Team (NEST) Joint Technical Operations Team (JTOT I)	SO-42	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	5 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL.	Yes	4 hours after notification must be in Kirkland Air Force Base, NM.	750 pounds 3 personnel	24 hrs.
Transportation of personnel and cargo				None.				
Nuclear Emergency Search Team (NEST) Joint Technical Operations Team (JTOT II)	SO-42	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	5 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL.	Yes	6 hours	1,500 pounds 6 personnel and baggage	24 hrs.
Transportation of personnel and cargo				None.				
Nuclear Emergency Search Team (NEST) Joint Technical Operations Team (JTOT III)	SO-42	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized						See SO-42 Summary Table.
Transportation of personnel and cargo								
Nuclear Emergency Search Team (NEST) Search Response Team (SRT)	SO-42	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-40,000 MSL.	Yes	6 hours	4,801 pounds 3,051 pounds cargo and 7 personnel	15 hrs.
Transportation of personnel and cargo				None.				
Nuclear Emergency Search Team (NEST) Search Augmentation Team (SAT)	SO-42	Fixed wing turbo-jet or multi engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-40,000 MSL.	Yes	10 hours	21,667 pounds 15,667 pounds cargo and 24 personnel	24 hrs.
Transportation of personnel and cargo								

OTHER REQUIREMENTS: SO-42 has a Memorandum of Agreement with the DoD for all OCONUS operations.

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY

CUSTOMER REQUIREMENTS: DOE-NV, Environmental Quality- Environmental restoration assessments.

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Environmental Quality Surveys Aerial Measurement Systems Low Altitude- radiological- (AMS)	DOE NRC EPA NASA USGS	Rotorcraft turbine-twin	2.5 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-12,500 MSL (conduct of operations 100 ft. AGL - 1500 ft. AGL)	No	None, scheduled events. Aircraft located on East Cost and in Nevada.	2,030 pounds 1,150 pounds installed equipment and 3 personnel	263 hrs.
Aerial survey				Modifications to airframe and electrical system required to accommodate sensors.				
Environmental Quality Surveys AMS Low to Mid Altitude- radiological	DOE NRC EPA NASA USGS	Fixed wing multi engine turbo-prop, pressurized	3 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL (conduct of operations 500 ft. AGL - 5000 ft. AGL)	Yes	None, scheduled events. Aircraft located on East Cost and in Nevada.	2,030 pounds 1,150 pounds installed equipment and 3 personnel	128 hrs.
Aerial survey				Modifications to airframe and electrical system required to accommodate sensors.				
Environmental Quality Surveys AMS High Altitude-multispectral (radiation and photographic)	DOE NRC EPA NASA USGS	Fixed wing turbo-jet	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-45,000 MSL (Conduct operations 40,000 MSL to 45,000 MSL)	Yes	None, scheduled events.	2,030 pounds 1,150 pounds installed equipment and 3 personnel	106 hrs.
Aerial survey/photography				Modifications to airframe and electrical system required to accommodate sensors.				
Aerial Measurement Systems (AMS) sensor and detection equipment development.	NN-20 SC-74 SO-42 DOE Labs	Fixed wing turbo-jet	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-45,000 MSL (Turbo-jet)	Yes	None, scheduled events.	2,500 pounds Research projects will vary but it was determined that a payload of 2,500 pounds would meet most of the customer needs.	182 hrs.
Research and development (sensors)		Fixed wing multi-engine turbo-prop, pressurized	3 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL (turbo-prop)	Yes			
		Rotorcraft turbine-twin	2.5 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-12,500 MSL (rotorcraft)	Yes			
				Modifications to airframe and electrical system required to accommodate sensors.				

OTHER REQUIREMENTS:

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: Science

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Oakland Operations Office (DOE-OAK), Aviation Program Manager: Douglas Eddy
DOE-OAK, Emergency Response Group: Mike Cornell

DOE

PROGRAM (s): **Science:** The Department of Energy (DOE) is the third-largest government sponsor of basic research in the United States, principally through programs managed by the Office of Science. The mission of the Office of Science is to advance basic research and the instruments of science that are the foundations for DOE's applied missions, a base for U.S. technology innovation, and a source of remarkable insights into our physical and biological world and the nature of matter and energy.

In service to DOE's applied missions in energy resources, environmental quality, and national security, Office of Science programs lead the nation in many areas of the physical and computational sciences, and contribute significantly to major advances in biological research. These programs extend the frontiers of basic scientific knowledge—DOE and its predecessor agencies have supported the award-winning scientific research of 68 Nobel Laureates from 1934 through 1998.

National Security- Emergency Response: The DOE has the world's leading scientists, engineers and technicians from over 50 years of managing the nation's nuclear weapons program. When the need arises, DOE is prepared to respond immediately to any type of radiological accident or incident anywhere in the world with seven radiological emergency response assets.

Environmental Quality: The Office of Environmental Restoration was created within the newly established Office of Environmental Management (EM) to consolidate, centralize and promote the cleanup of contaminated waste sites and surplus facilities within the DOE Complex.

OFFICE

PROGRAM(s): The Oakland Operations Office serves the public by executing programs, performing contract management, and conducting operational oversight of National Laboratories, research and developmental contractors and grantees in support of Department of Energy requirements and priorities:

Program execution involves program integration and the implementation of designated programs by working closely with HQ and contractors to identify needs, establish performance objectives, formulate budgets, secure adequate resources, manage execution, control changes, assess accomplishments, and validate performance.

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE OPERATIONS OFFICE SUMMARY

Operational oversight activities include performance based assessments of Environment, Safety and Health, Safeguards and Security, and infrastructure management at National Laboratories.

AREA OF OPERATIONS: CONUS and OCONUS

SURVEY RESULTS:

The DOE-OAK Operations through its various contractors use aircraft in support of their broader mission of research and development activities, environmental management of the Lawrence Livermore National Laboratory (LLNL) and Lawrence Berkeley National Laboratory (LBNL). DOE-OAK contractors use aircraft from commercial operators located at Santa Clara and San Jose, California. In addition, DOE-OAK utilizes commercially owned and operated aircraft to support transportation needs at LLNL and LBNL for official and mission travel needs. It was noted that DOE-OAK and its contractors have National Security emergency response needs to move personnel and cargo on short notice in case of an emergency involving nuclear materiel accidents.

SUGGESTIONS:

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Oakland Operations Office

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Mission Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure Point	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Emergency Response, Radiological Assistance Program	SO-42	Fixed wing multi-engine turbo-jet	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI.-35,000 MSL.	Yes	2 hours	2,250 pounds 250 cargo and 8 personnel	24 hrs.
Transportation of personnel and cargo				14 CFR Part 135 certification.				

NOTE: Due to Oakland RAP responsibilities OAK must have transportation capable of flying from OAK to Hawaii.

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE OPERATIONS OFFICE SUMMARY

LEAD PROGRAM SECRETARIAL OFFICE: Science

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

DOE-Oak Ridge Operations Office (ORO), Aviation Program Manager, Doug Stancell
DOE-ORO, Regional Response Coordinator, Bobby Davis, Steve Johnson
DOE-ORO, REAC/TS Emergency Response, Dr. Bobby Ricks
DOE-ORO, Laboratory Management, Greg Mills/ORISE and Michelle Branton/ORNL
DOE-ORO, Environmental Management, David Carden

DOE

PROGRAM(s): **Environmental Quality:** The Office of Environmental Restoration was created within the newly established Office of Environmental Management (EM) to consolidate, centralize and promote the cleanup of contaminated waste sites and surplus facilities within the DOE Complex.

Science: The Department of Energy is the third-largest government sponsor of basic research in the United States, principally through programs managed by the Office of Science. The mission of the Office of Science is to advance basic research and the instruments of science that are the foundations for DOE's applied missions, a base for U.S. technology innovation, and a source of remarkable insights into our physical and biological world and the nature of matter and energy.

National Security: To provide an infrastructure and ability to respond to nuclear threats and nuclear accidents for the United States. DOE-ORO's radiological emergency response assets include the Radiological Assistance Program (RAP) and the Radiation Emergency Assistance Center/Training Site (REAC/TS). The REAC/TS team is ready to respond to any type of radiological accident or incident anywhere in the world.

OFFICE

PROGRAM(s):

Research and Development: Oak Ridge's Energy Research and Development Programs are performed at three facilities: Oak Ridge National Laboratory, Thomas Jefferson National Accelerator Facility, and Oak Ridge Institute for Science and Education. These facilities focus on basic and applied research to advance the nation's energy resources, environmental quality, and scientific knowledge, and to contribute to education and national economic competitiveness.

Emergency Response: To provide the ability to respond to nuclear threats and nuclear accidents for the United States. DOE-ORO's radiological emergency response assets include support to the Radiological Assistance Program (RAP) and the REAC/TS program.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

Environmental Monitoring and Restoration: Environmental Management is the largest Oak Ridge program, with cleanup projects underway to correct the legacies remaining from up to 50 years of energy research and weapons production, as well as an aggressive effort to manage currently-generated wastes.

AREA OF

OPERATIONS: CONUS and OCONUS

SURVEY RESULTS:

The ORO Office of Emergency Response is a key DOE National Security program that requires access to DOE fleet aircraft, charter aircraft, or DoD aircraft to be available for transportation on demand 24 hours a day, seven days a week, throughout the year.

The CAPS Phase One Team determined that DOE-ORO does have commercially owned and operated charter companies identified that say they can meet the RAP and REAC/TS response times, but these resources have never been tested in an exercise. ORO plans on using commercial air to meet deployment requirements for exercises. The activities and aircraft currently supporting this program are justified and the use of aircraft has been verified by the CAPS Phase One Team.

SUGGESTIONS:

It is essential for this customer to work with the Office of Aviation Management in establishing an internet based, Nation-wide, on-demand, approved charter aircraft vendor list.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Oak Ridge Operations - Science and Environmental Quality

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure Point.	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Official Travel and other Mission travel	SC DP EM UE LM	Fixed wing, twin engine, turboprop, pressurized, 12,000 pounds GW or less	3 hours plus IFR reserves	Capable of instrument flight within the NAS from SL to 25000 MSL.	Yes	None, scheduled event.	1,760 pounds 8 personnel plus equipment	25 hrs.
Transportation of personnel and cargo				None				
AMS Multispectral and Gamma surveys of Oak Ridge Facilities	EM	Rotorcraft, twin turbine for low altitude survey	2.5 hours plus VFR reserves	Capable of operating within the NAS from SL to 12,500 MSL (Rotorcraft)	No	None, scheduled event every 5 years.	1,500 pounds 1,000 pounds of equipment and 3 personnel	Scheduled for the year 2002. The hours and costs have been included in the NVO Summary Table.
Aerial survey for radiological assessments		Fixed wing, twin engine turboprop or turbine aircraft for medium and high altitude.	4 hours plus IFR reserves	Airframe and electrical systems modified in accordance with FAA regulations to accommodate sensors and special equipment.	Yes			
Photography for site maintenance and environmental management.	EM Lab. Mgmt. (LM) DP ORO UE	Fixed wing, single engine, piston or rotorcraft, single engine, turbine	2.5 hours plus VFR reserves	Capable of operating in the NAS from SL to 12,500 MSL.	No	None, scheduled event.	500 pounds 60 pounds of equipment and 2 personnel	15 hrs.
Aerial photography				Camera equipment installed or available per site requirements				
Atmospheric Research and Development Assessments	NOAA	Fixed wing, single engine, piston, high performance	5 to 10 hours duration plus VFR reserves	Capable of operating in the NAS from SL to 30,000 MSL at 100 knots.	No	None, scheduled event.	300 pounds 80 pounds of equipment and 1 personnel	145 hrs.
Aerial survey				Airframe and electrical systems modified per FAA regulations to accommodate sensors.				
Emergency medical response to nuclear accidents. (REAC/TIS)	DP	Fixed wing, twin engine, turbine	6 hours plus IFR reserves (CONUS) Fly non-stop to either coast Use DOD aircraft for OCONUS	Capable of operating in the NAS from SL to 35,000 MSL.	Yes	4 hours within CONUS.	2,700 pounds Maximum 10 personnel and 500 pounds of equipment	Unknown. Anticipated deployment is 2-3 people plus equipment and would try to go commercial. Charter is backup for full team deployment.
Transportation of personnel and cargo				None.				

CUSTOMER REQUIREMENTS: Oak Ridge Operations - Science and Environmental Quality

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure.	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Radiological Assistance Program (RAP).	DP	Fixed wing, twin engine, turbine	4 hours plus IFR reserves	Capable of instrument flight within the NAS from SL to 35,000 MSL.	Yes	Yes - Two hours to departure.	2,040 pounds 7 personnel and 500 pounds of equipment	Unknown. Anticipate 1-2 exercises/year; would try to go commercial. Charter is likely for a full team deployment.
Transportation of passengers and cargo				None				

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: Environmental Quality

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Pacific Northwest National Laboratory (PNNL)
PNNL, Rich Barchet: Scientist
Richland Operations Office: Jeff Day
PNNL: Eva Baron
Battelle: Nori Nichols

DOE

PROGRAM(s): **Science:** The programs of the Office of Science (SC) fund basic research in order to advance the fundamental science knowledge base, as well as train future scientists. Research of this type has been supported by the Department of Energy and its predecessors for over 40 years and includes research to develop the knowledge needed to identify, understand, and anticipate the long-term health and environmental consequences of energy production, development, and use. This mission is carried out through the program's support of peer-reviewed research at DOE National Laboratories, universities, and private institutions. The research is also designed to provide science in support of the Energy Policy Act of 1992.

OFFICE

PROGRAM(s): Pacific Northwest National Laboratory (PNNL) delivers environmental science and technology in service to the nation and humanity. Building on this core mission, we carry out related national security, energy, and human health programs that make our world a better place to live.

AREA OF

OPERATIONS: CONUS and OCONUS

SURVEY

RESULTS: The PNNL requires aircraft to conduct one of its primary missions of Atmospheric Research. This research is funded by the Office of Biological and Environmental Research, SC-70. The two key research programs are the Atmospheric Chemistry Program and the Atmospheric Radiation (Solar) Measurements Program. In addition, PNNL transports personnel to various sites when it proves more cost effective to travel by charter aircraft than regularly scheduled airlines.

PNNL utilizes a heavily modified, large twin engine, turbine powered, propeller aircraft (Turbo-prop) that has a pressurized cabin and is owned by Battelle, the PNNL Management and Operations contractor. All Battelle and other commercially owned and operated aircraft used in the Atmospheric Chemistry Program and the Atmospheric Radiation Measurements program are modified to accommodate outside air probes, internal sensors, and data collection systems. The aircraft electrical power systems are modified to accommodate the additional electrical power requirements of the installed equipment. The program payload requirements vary from 300 pounds to

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

approximately 2,500 pounds including mission personnel. The majority of survey flights are conducted between 1,500 feet above ground (AGL) to 10,000 AGL, but some operations to 25,000 AGL are required. PNNL aircraft, when used by SC-74 to carry out scientific investigations following emergency event such as Chernobyl, Mt. St. Helens, and the Kuwait oil fires, must be deployed on short notice.

The PNNL aircraft is located in Pasco, Washington. The aerial survey flights with this aircraft are conducted through the CONUS, for the most part the area of operations are in the midwestern, northeastern, and eastern states. However, the atmospheric research in support of these programs has been conducted by the PNNL and other contracted aircraft in Alaska, Australia, and the Middle East.

SUGGESTIONS:

The Office of Science, Office of Aviation Management, Chicago and Richland Operations Office, ANL and PNNL should conduct a cost analysis of the current research aircraft requirements to determine if cost efficiencies can be obtained by upgrading equipment or consider existing DOE fleet aircraft that are similarly modified for this type of aerial survey work.

PNNL in collaboration with the Office of Science and Office of Aviation Management should conduct an analysis to determine if the Battelle Aircraft is located in the most efficient location considering the majority of the missions are conducted in the mid-west and north-east United States.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Pacific Northwest National Laboratory

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE TO MEET MISSION REQUIREMENTS	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure Point	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Official Travel and travel related to PNNL activities	RL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	On call.	2,250 pounds	28 hrs.
Transportation of personnel and cargo				1,500 pounds equipment and 3 personnel				
Atmospheric Chemistry Program	SC	Fixed wing turbo-prop, twin, pressurized	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-25,000 MSL (Conduct of operations VMC generally below 12,500 MSL)	Yes	On call.	2,250 pounds	85.5 hours
Aerial survey				Airframe and electrical system modifications to accommodate sensors, probes, and computers. Must be FAA-approved installations.			1,500 pounds equipment and 3 personnel	
Atmospheric Radiation (solar) Measurements program (Low altitude)	SC	Fixed wing turbo-prop, twin, pressurized	4 hours plus VFR reserves	Capable of navigation within NAS-SL - 18,000 MSL (Conduct of operations VMC below 18,000 MSL)	Yes	None, scheduled events.	2,250 pounds	See SNL Summary Table.
Aerial survey				Airframe and electrical system modifications to accommodate sensors, probes, and computers. Must be FAA-approved installations.			1,500 pounds equipment and 3 personnel	
Atmospheric Radiation (solar) Measurements program (medium altitude)	SC	Fixed wing turbo-prop, twin pressurized	4 hours plus IFR reserves	Capable of navigation within NAS-SL - 25,000 MSL (Conduct of operations VMC below 18,000 MSL)	Yes	On call.	2,250 pounds	45.5 hrs.
Aerial survey				Airframe and electrical system modifications to accommodate sensors, probes, and computers. Must be FAA-approved installations.			1,500 pounds equipment and 3 personnel	
Research and development of sensors	SC	Fixed wing single engine piston or turbo-prop, twin, pressurized, turbo jet	4 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL SL - 25,000 MSL SL - 40,000 MSL (Conduct of operations VMC)	No	None, scheduled events.	Varies from 200 pounds and no personnel to 2,250 pounds and 3 personnel	0 hrs.
Research and development (sensors and RPAs)				Airframe and electrical system modifications to accommodate sensors, probes, and computers. Must be FAA-approved installations.				

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: Environmental Quality

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

RL-OPS, Keith Klein, Operations Manager
RL-OPS, Gerry Bell, Aviation Manager
RL-OPS, Kathy Beecher, Radiological Assistance Program Leader
RL-OPS, Sally Senciak, Contracting Officer

DOE

PROGRAM(s): **Environmental Quality:** The Office of Environmental Restoration was created within the newly established Office of Environmental Management (EM) to consolidate, centralize and promote the cleanup of contaminated waste sites and surplus facilities within the DOE Complex.

OFFICE

PROGRAM(s): As a plutonium production complex, Hanford played a critical role in the nation's defense for more than 50 years beginning in the 1940's with the Manhattan Project. Hanford is the world's largest environmental cleanup project, with many challenges to be resolved in the face of overlapping technological, political, regulatory, and cultural interests. Despite the complex and dangerous nature of the work, progress is being made toward completion of Hanford's missions -- to safely clean up and manage the site's legacy wastes, and to develop and deploy science and technology. The Department of Energy's Richland Operations Office is responsible for this work, in close coordination with the commercial companies hired to manage and complete the work.

AREA OF

OPERATIONS: Hanford Site, Washington; CONUS and OCONUS

SURVEY

RESULT: The Richland Operations through its various contractors use aircraft in support of their broader mission of environmental restoration of the Hanford Site. DOE-RL contractors use aircraft from commercial operators located at Pasco, Washington for aerial photography, biological aerial surveys, and aerial application for weed control. In addition, DOE-RL uses aircraft from other DOE organizations such as, DOE-AL and BPA to transport personnel for official travel. DOE-RL also has a Memorandum of Agreement with the National Guard for a heavy lift helicopter to move an 18,000 pound drill rig to a remote site for environmental assessment work. It was noted that DOE-RL has a Radiological Assistance Program need to move personnel and cargo on short notice in case of an emergency involving nuclear materials accidents.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

SUGGESTIONS:

Because OMB A-76 and DoD regulations require that the Government not compete with its citizens, DOE-RL should determine if any local commercial operators are available to conduct the external load heavy lift work. An A-126 cost analysis should be done to determine the most cost efficient aircraft to perform this mission.

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Richland Operations Office

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE TO MEET MISSION REQUIREMENTS	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure Point	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Official Travel and travel related to DOE-RI activities	EM-40	Fixed wing multi-engine turbo-prop, pressurized	3 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI.-35,000 MSL	Yes	None, scheduled events.	1,320 pounds	10 hrs.
Transportation of personnel and cargo				14 CFR Part 135 certification.			6 personnel and cargo	
Emergency Response, RAP Team	SO-42	Fixed wing multi-engine turbo-jet	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI.-35,000 MSL	Yes	2 hours	2,250 pounds	12 hrs.
Transportation of personnel and cargo				14 CFR Part 135 certification.			250 cargo and 8 personnel	
Aerial survey for biological research and biological assessments (Elk counts, etc.)	EM	Fixed wing single engine piston	2.5 hours plus VFR reserves	Capable of navigation within NAS-SI. - 12,500 MSL (Conduct of operations VMC)	No	None, scheduled events.	500 pounds	12 hrs.
Aerial survey				Special radio homing device for animal counts and tracking.			50 pounds of equipment and 1 personnel	
Aerial survey for biological research and biological assessments (Elk counts, etc.) Tagging game for future surveys	EM	Rotorcraft single engine turbine, 6,500 pounds or less	2.5 hours plus VFR reserves	Capable of navigation within NAS-SI. - 12,500 MSL (Conduct of operations VMC)	No	None, scheduled events.	500 pounds	6 hrs.
Aerial survey				Special training for darting animals.			50 pounds of equipment and 1 personnel	
Aerial photography site maintenance and site construction activities	EM	Fixed wing single engine piston	2.5 hours plus VFR reserves	Capable of navigation within NAS-SI. - 12,500 MSL (Conduct of operations VMC)	No	None, scheduled events.	500 pounds	15 hrs.
Aerial photography				Airframe modified for belly camera.			100 pounds of equipment and 1 personnel	
Site infrastructure maintenance, weed control	EM	Rotorcraft single turbine, 12,500 pounds or less	2.5 hours plus VFR reserves	Capable of navigation within NAS-SI. - 12,500 MSL (Conduct of operations VMC)	No	None, scheduled events.	3,500 pounds	60 hrs.
Aerial application				Airframe modified for FAA-approved spray equipment and certified under 14 CFR Part 137, pilots must be experienced in agricultural operations. Requires portable mixing truck.			3,500 pounds of chemical	

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: Environmental Quality

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

RW-1, Acting Director, Lake Barrett

DOE

PROGRAM(s): **Environmental Quality:** Environmental Quality: The Nuclear Waste Policy Act of 1982 established the Office of Civilian Radioactive Waste Management (OCRWM) within the U.S. Department of Energy (DOE) to develop and manage a Federal system for disposing of all spent nuclear fuel from commercial nuclear reactors and high-level radioactive waste resulting from atomic energy defense activities. The statute provides detailed direction for the scientific, technical, and institutional development of the system, and it requires that waste management facilities be licensed by the U.S. Nuclear Regulatory Commission (NRC).

OFFICE

PROGRAM(s): Our Nation's commitment to geologic disposal as the basic goal of its high-level radioactive waste management policy is essential not only for addressing the problem of disposing of commercial spent nuclear fuel, but also for cleaning up the nuclear weapons complex, complying with the international nuclear nonproliferation policy, supporting the international consensus on permanent disposal of nuclear waste, and fulfilling the national defense mission. Permanent disposal of civilian- and defense-related high-level radioactive wastes will enable the Nation to continue to demonstrate leadership and advance nonproliferation goals by moving forward with its plans for the disposition of surplus fissile materials, as well.

AREA OF

OPERATIONS: Nevada

SURVEY RESULTS:

At the program level there are no specific aircraft needs identified, other than the need for the YMSCP to use aircraft in direct support of its overall mission of studying the Yucca Mountain site and associated construction activity. In addition, many Congressional, State, and other key officials must visit the remote site.

SUGGESTIONS:

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: RW-1, Environmental Quality

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Environmental Waste Management	Yucca Mountain Site							See Yucca Mountain Site Summary Table.
Aerial survey (environmental and radiological)								

Other Special Requirements: Program level office did not identify any specific aircraft requirements.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: Science

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

SC-70, Office of Biological and Environmental Research, ~~William Barchet~~
SC-74, Environmental Sciences Division, Office of Science, ~~Patrick Crowley~~

Dean Elwood (Mike Riches)

DOE

PROGRAM(s): The DOE is the third largest government sponsor of basic research in the United States, principally through programs managed by the Office of Science. The mission of the Office of Science is to advance basic research and the instruments of science that are the foundations for DOE's applied missions, a base for U.S. technology innovation, and a source of remarkable insights into our physical and biological world and the nature of matter and energy.

In service to DOE's applied missions in energy resources, environmental quality, and national security, Office of Science programs lead the nation in many areas of the physical and computational sciences, and contribute significantly to major advances in biological research. These programs extend the frontiers of basic scientific knowledge—DOE and its predecessor agencies have supported the award-winning scientific research of 68 Nobel Laureates from 1934 through 1998.

OFFICE

PROGRAM(s): **Atmospheric Chemistry Program (ACP) and the Atmospheric Radiation (solar) Measurements (ARM) program:** Provides the basic research data to determine the energy impacts on people and the biosphere:

Sources and Fate of Energy By-products: Improve our scientific understanding of the sources and fate of energy by-products. Research the sources and transport in the biosphere and chemical interactions and transformations.

Impacts on People and the Environment: Provide a basic understanding of the biology and ecology of energy by-products as they affect humans and the natural world. Research the human health impacts and risks, ecosystem and biological responses, and the regional and global consequences.

AREA OF

OPERATIONS: CONUS and OCONUS

SURVEY

RESULTS: The ACP and ARM programs require aerial platforms to carry sensors and detectors from 1,000 feet above the ground to heights of 60,000 feet above mean sea level to acquire atmospheric data. Aircraft are an essential part of these atmospheric research programs. DOE-owned aircraft are used occasionally in this research, but for the most part contractor-owned and -operated aircraft conduct the research flights. The Office of Science also has an Inter-Service Support Service Agreement in place with the U.S. Navy to provide a Remotely Piloted Aircraft/Unmanned Air Vehicle. In addition, the

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE PROGRAM OFFICE SUMMARY

National Aeronautical and Space Administration participates in joint ventures with the Office of Science that require specialized aircraft capable of flight above 50,000 feet mean sea level.

The Office of Science works primarily with the Pacific Northwest National Laboratory (PNNL). PNNL utilizes a twin engine, turbine powered, propeller airplane (Turbo-prop) that has a pressurized cabin and is owned by Battelle Corporation, the PNNL Managing and Operating Contractor. The PNNL aircraft is located in Richland, Washington. The aerial survey flights are conducted throughout the CONUS, but for the most part, the area of operations are in the mid-western, north-eastern, and eastern states. However, atmospheric research has been conducted in Alaska, Australia, and other parts of the CONUS using the Battelle aircraft and other commercially owned and operated aircraft.

All of the aircraft used for this mission are modified to accommodate outside air probes, internal sensors, and data collection systems. The aircraft electrical systems are modified to accommodate the additional electrical power requirements for the installed equipment. The program payload requirements vary from 300 pounds to approximately 2,500 pounds including mission personnel. The majority of survey flights are conducted between 1,500 feet above ground level (AGL) to 5,000 AGL. However, it is essential to the ARM program to obtain high altitude data, which requires aerial platforms capable of flying to 65,000 feet above mean sea level and loiter for up to 18 hours.

The CAPS Phase One Team determined that DOE-owned and contractor-operated aircraft may be capable of conducting this type of aerial survey. The CAPS Phase One Team also determined, through review of Program Office cost records, that the Battelle Corporation aircraft's flight hour cost appears to be unfair and unreasonable for this type of aircraft.

SUGGESTIONS:

The CAPS Phase One Team believes the Office of Science, Office of Aviation Management, Richland Operations Office, and PNNL should collaborate in a cost analysis of the current PNNL aircraft and explore other options that may provide cost efficiencies.

The cost analysis should be conducted separately from any DOE-wide cost studies that may occur.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: SC-70, Office of Biological and Environmental Research; SC-74, Environmental Sciences Division, Office of Science

MISSION TYPE OF FLIGHT OPERATION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
				SPECIAL REQUIREMENTS				
Atmospheric Chemistry Program, atmospheric research.	SC-70 PNNL	Fixed wing multi-engine turbo-prop, pressurized	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL (Conduct of operations usually at or below 5000 ft. AGL)	Yes	None, scheduled events.	2,500 pounds 1,750 pounds of installed equipment and 3 personnel.	73 hrs.
Aerial survey				Modifications to airframe and electrical systems to accommodate outside probes and sensors. Cabin modifications to accommodate instruments and data collection equipment.				
Atmospheric Radiation (solar) Measurements (ARM) Program, atmospheric research. <i>Low to medium altitudes</i>	SC-74 PNNL NASA	Fixed wing multi-engine turbo-prop, pressurized	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL (Conduct of operations usually below 35,000 ft. MSL)	Yes	None, scheduled events.	2,000 pounds 1,250 pounds of installed equipment and 3 personnel.	45 hrs.
Aerial survey				Modifications to airframe and electrical systems to accommodate outside probes and sensors. Cabin modifications to accommodate instruments and data collection equipment.				
Atmospheric Radiation (solar) Measurements (ARM) Program, atmospheric research. <i>Medium to High altitudes</i>	SC-74 PNNL NASA	Fixed wing turbo-jet	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-45,000 MSL (Conduct of operations usually at or above 25,000 ft. to 45,000 ft. MSL)	Yes	None, scheduled events.	2,000 pounds 1,250 pounds of installed equipment and 3 personnel.	92 hrs.
Aerial survey				Modifications to airframe and electrical systems to accommodate outside probes and sensors. Cabin modifications to accommodate instruments and data collection equipment.				
Atmospheric Radiation (solar) Measurements (ARM) Program, atmospheric research. <i>High altitudes</i>	SC-74 PNNL NASA	Fixed wing turbo-jet	6 hours plus IFR Reserves	Capable of Instrument flight within the NAS-SL-60,000 MSL (Conduct of operations usually above 45,000 ft. to 60,000 ft. MSL)	Yes No for the RPA	None, scheduled events.	2,000 pounds 1,250 pounds of installed equipment and 3 personnel.	See SNL Summary Table.
Aerial survey		Remotely Piloted Aircraft (RPA)	12 hours plus VFR reserves	Modifications to airframe and electrical systems to accommodate outside probes and sensors. Cabin modifications to accommodate instruments and data collection equipment.				

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: National Security

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Sandia National Laboratory (SNL), Safety Engineering, Kenneth Miles
Sandia National Laboratory (SNL), Synthetic Aperture Radar Research, Brett Remund
SNL, Environmental Monitoring & Characterization, Bernie Zak
SNL, Printing and Duplicating/Creative Arts, Lorraine McCutcheon

DOE

PROGRAM(s):

National Security: The Department of Energy is responsible for the United States government's research and development functions for monitoring nuclear explosions. This responsibility includes the November 1993 transfer of the Department of Defense's Research and Development responsibility to DOE. The DOE research program builds on the broad base of US expertise developed historically and focuses research and development on detecting, locating, identifying, and characterizing nuclear explosions in all environments.

National Security Emergency Response: The DOE has the world's leading scientists, engineers and technicians from over 50 years of managing the nation's nuclear weapons program. When the need arises, DOE is prepared to respond immediately to any type of radiological accident or incident anywhere in the world with seven radiological emergency response assets.

Environmental Quality: The Office of Environmental Restoration was created within the newly established Office of Environmental Management (EM) to consolidate, centralize and promote the cleanup of contaminated waste sites and surplus facilities within the DOE Complex.

Science: The Department of Energy (DOE) is the third-largest government sponsor of basic research in the United States, principally through programs managed by the Office of Science. The mission of the Office of Science is to advance basic research and the instruments of science that are the foundations for DOE's applied missions, a base for U.S. technology innovation, and a source of remarkable insights into our physical and biological world and the nature of matter and energy.

OFFICE

PROGRAM(s):

The Labs' original program -- providing engineering design for all non-nuclear components of the nation's nuclear weapons -- continues today, but Sandia now also performs a wide variety of national security Research & Development work. Our broadly stated mission today:

As a Department of Energy national laboratory, Sandia works in partnership with universities and industry to enhance the security, prosperity, and well-being of the nation.

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE OPERATIONS OFFICE SUMMARY

We provide scientific and engineering solutions to meet national needs in nuclear weapons and related defense systems, energy security, and environmental integrity, and to address emerging national challenges for both government and industry.

AREA OF

OPERATIONS: CONUS and OCONUS

SURVEY RESULTS:

SNL, like many of the national laboratories is unique in the types of programs and missions supported by DOE-owned, contractor operated, and military aircraft. It is clear to the CAPS Phase One Team that if SNL had additional research aircraft, and coordinated with the other laboratories, SNL and the other national laboratories would participate in many more research projects.

SNL assists the Office of Research and Development's program in support of Nuclear Nonproliferation. Aircraft are justified based on the need to develop airborne sensors and equipment for national security programs. Flight crews will require a Q clearance and background in aircraft flight test and safety analysis. Aircraft in service to this mission require extensive airframe alterations and modifications of aircraft systems to accommodate sensors and equipment, which would limit commercially-owned and-operated aircraft from this activity. Most of the research activity involves aircraft that have unpressurized hulls, making modifications to airframes a much simpler process. The normal operating altitude is below 12,500 feet mean sea level. However, there is clearly a need for an aircraft capable of flight to an altitude of 40,000 feet mean sea level able to carry a 2500 pound payload and remain at that altitude for a minimum of 3 hours. This type of aircraft activity would prohibit commercial operators from competing for this work, again, due to the aircraft modifications costing millions of dollars.

SUGGESTIONS:

The Office of Aviation Management in collaboration with NN-20, Sandia National Laboratory, Los Alamos National Laboratory, Lawrence Livermore National Laboratory, Pacific Northwest Laboratory, Albuquerque and the Nevada Operations Office conduct an OMB A-76 cost analysis. The cost analysis should look at establishing a central clearing house for research aircraft activities to increase utilization and should investigate the need to acquire additional aircraft in support of the Nuclear Nonproliferation Research and Development Program.

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Sandia National Laboratory

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (Flight Hours)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Official Travel to remote sites in Alaska in support of Atmospheric Radiation (solar) Measurements Program (ARMS)	SC-74 AL SNL	Fixed wing single engine, piston	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-12,500 MSL	No	None, scheduled events.	1,380 pounds 4 personnel and 500 pounds cargo	10 hrs.
Transportation of personnel and cargo				14 CFR Part 135 certification.				
Cargo lifts by helicopter to remote area in support of ARMS program in Alaska.	SC-74 AL SNL	Rotorcraft single turbine engine, 12,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL [Conduct of operations VMC]	No	None, scheduled events.	2,000 pounds 2,000 pounds of cargo or equipment	1 hr.
External load				Certified and operation conducted under 14 CFR Part 133.				
Aerial photography site maintenance and site construction activities	EM AL SNL	Fixed wing single engine piston or Rotorcraft single turbine engine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL [Conduct of operations VMC]	No	None, scheduled events.	500 pounds 100 pounds equipment and 1 personnel	1 hrs. (Fixed wing) 35 hrs. (Rotorcraft)
Aerial photography				Aircraft must have video and camera equipment installed or available.				
Site maintenance and support. (Cargo lifts by helicopter to mountainous area for communications maintenance.	AL SNL	Rotorcraft single turbine engine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL [Conduct of operations VMC]	No	None, scheduled events.	1,200 pounds 1,200 pounds of cargo or equipment	3 hrs.
External load				Certified and operation conducted under 14 CFR Part 133.				
Develop technologies in support of nuclear nonproliferation activities.	NN-20 DoD	Fixed wing multi-engine, turbo-prop	4 hours plus IFR reserves	Capable of instrument navigation within NAS, SL - 25,000 MSL (Conduct of operations generally at or below 15,000 MSL)	Yes, enroute No, during mission	None, scheduled events.	3,380 pounds 2,500 pounds of instruments, sensors, etc., and 3 personnel	500 hrs.
Research and development (sensors)				Extensive modifications to airframe to accommodate lateral and downward views through special glass. Modifications to electrical system to accommodate additional electrical appliances.				
Develop technologies in support of nuclear nonproliferation activities.	NN-20 DoD	Fixed wing turbo-jet or multi-engine, turbo-prop, pressurized	4 hours plus IFR reserves	Capable of instrument navigation within NAS, SL - 40,000 MSL	Yes, enroute No, during mission	None, scheduled events.	3,380 pounds 2,500 pounds of instruments, sensors, etc., and 4 personnel	200 hrs.
Research and development (sensors)				Extensive modifications to airframe to accommodate lateral and downward views, radome installations, etc. Modifications to electrical system to accommodate additional electrical appliances.				

OTHER SPECIAL REQUIREMENTS: Need for data security involving GPS and navigation position information. Aircrew will need Q clearances.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Sandia National Laboratory

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Emergency Response Accident Response Group (ARG) Phase One	SO-42 AL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	4 hours	860 pounds	See DOE-AL Summary Table.
Transportation of personnel and cargo				None. LANL team joins up in Albuquerque with other personnel.			3 personnel with 200 pounds of cargo	
Emergency Response Accident Response Group (ARG) Phase 2	SO-42 AL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	6 hours	45,280 pounds	0 hrs.
Transportation of personnel and cargo				None. LANL team joins up in Albuquerque with other personnel.			24 personnel with 40,000 pounds of cargo	(DoD Aircraft)
Emergency Response Accident Response Group (ARG) Phase 3	SO-42 AL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	8 hours	36,600 pounds	0 hrs.
Transportation of personnel and cargo				None. LANL team joins up in Albuquerque with other personnel.			30 personnel with 30,000 pounds of cargo	See DOE-AL Summary Table. (DoD Aircraft)
Emergency Response Radiological Assistance Program (RAP)	SO-42 AL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-40,000 MSL	Yes	2 hours (Within region)	2,250 pounds	See DOE-AL Summary Table.
Transportation of personnel and cargo				None. LANL team joins up in Albuquerque with other personnel.			250 cargo and 8 personnel	

OTHER SPECIAL REQUIREMENTS:

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: National Security

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

SO-42 (formerly DP-23), Office of Emergency Response, Jay Cook

DOE

PROGRAM(s): The DOE has important national security responsibilities. The DOE has the world's leading scientists, engineers and technicians from over 50 years of managing the nation's nuclear weapons program. When the need arises, DOE is prepared to respond immediately to any type of radiological accident or incident anywhere in the world with seven radiological emergency response assets.

OFFICE

PROGRAM(s): **Emergency Response:** To provide an infrastructure and ability to respond to nuclear threats and nuclear accidents for the United States. DOE's radiological emergency response assets include the Aerial Measuring System (AMS), the Atmospheric Release Advisory Capability (ARAC), the Accident Response Group (ARG), the Federal Radiological Monitoring and Assessment Center (FRMAC), the Nuclear Emergency Search Team (NEST), the Radiological Assistance Program (RAP), and the Radiation Emergency Assistance Center/Training Site (REAC/TS). DOE's assets are ready to respond to any type of radiological accident or incident anywhere in the world. DOE's job is to protect people and the environment.

AREA OF

OPERATIONS: CONUS and OCONUS

SURVEY RESULTS:

The Office of Emergency Response is a key DOE National Security program with a mission that requires access to DOE fleet aircraft, charter aircraft, or Department of Defense (DoD) aircraft for transportation on demand, 24 hours a day, 7 days a week throughout the year. This program supports DOE's responsibilities under the Federal Radiological Emergency Response Plan and other documents such as Presidential Directives, National contingency plans, etc., to provide emergency response assets.

The CAPS Phase One Team determined that many of the sites do not have adequate arrangements made for transportation to meet the program emergency response requirements.

The aircraft currently supporting the transportation needs of this program are justified due to the rapid deployment requirements and the need to deploy over great distances in a specified period time.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

SUGGESTIONS:

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

DOE has and must continue to have a Memorandum of Agreement (MOA) established between the DoD and the DOE for large transport category aircraft to meet international demands.

The Office of Aviation Management should collaborate with this Program Office and with the Nevada and Albuquerque Operations Offices in conducting an OMB A-76 fleet modernization cost analysis.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: SO-42, Emergency Response

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Emergency Response Accident Response Group (ARG) Phase One	SO-42 AL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	4 hours	3250 pounds 13 personnel with baggage	24 hrs.
Transportation of personnel and cargo				None.				
Emergency Response Accident Response Group (ARG) Phase Two	SO-42 AL NVO LLNL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-40,000 MSL	Yes	6 hours	45,280 pounds 24 personnel with 35,000 pounds of cargo	0 hrs. (DoD Aircraft)
Transportation of personnel and cargo				None.				
Emergency Response Accident Response Group (ARG) Phase Three	SO-42 AL NVO LLNL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	8 hours	36,600 pounds 30 personnel with 30,000 pounds of cargo	0 hrs. (DoD Aircraft)
Transportation of personnel and cargo				None.				
Emergency Response Radiological Assistance Program (RAP)	SO-42	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	2 hours	2250 pounds 250 cargo and 8 personnel	72 hrs.
Transportation of personnel and cargo				Future need may require aircraft capability to provide for nitrogen gas venting.				
Emergency Response FRMAC I	SO-42 NVO	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	4 hours	5250 pounds 1500 pounds cargo and 15 personnel	36 hrs.
Transportation of personnel and cargo				None.				
Emergency Response FRMAC II	SO-42 NVO	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	11 hours	50,000 pounds 35,000 pounds cargo and 60 personnel	12 hrs.
Transportation of personnel and cargo				None.				

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: SO-42, Emergency Response

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Emergency Response Joint Technical Operations Team (JTOT I)	SO-42 AL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI.-35,000 MSL	Yes	4 hours	1,500 pounds 6 personnel	24 hrs.
Transportation of personnel and cargo				None.				
Emergency Response Joint Technical Operations Team (JTOT II)	SO-42 AL NVO LLNL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI.-35,000 MSL	Yes	6 hours after notification	32,700 pounds 25,000 pounds cargo and 31 personnel	24 hrs.
Transportation of personnel and cargo				None.				
Emergency Response Joint Technical Operations Team (JTOT III)	SO-42 AL NVO LLNL	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI.-35,000 MSL	Yes	6 hours after notification	113,750 pounds 100,000 pounds cargo and 55 personnel	24 hrs. DoD operation no cost to DOE
Transportation of personnel and cargo								
Emergency Response Search Response Team (SRT)	SO-42	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI.-35,000 MSL	Yes	6 hours	4,801 pounds 3,051 pounds cargo and 7 personnel	72 hrs.
Transportation of personnel and cargo				None.				
Emergency Response Search Augmentation Team (SAT)	SO-42	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	6 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI.-35,000 MSL	Yes	10 hours	23,417 pounds 15,667 pounds cargo and 31 personnel	72 hrs.
Transportation of personnel and cargo				None.				
Consequence Management Official/Consequence Management planning Team	SO-42 NVO	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	4 hours plus IFR reserves	Capable of Instrument flight within the NAS-SI.-35,000 MSL	Yes	6 hours	2250 pounds 9 personnel	12 hrs.
Transportation of personnel and cargo				None.				

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
PROGRAM OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: SO-42, Emergency Response

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Emergency Response (SO-42) Aerial Measurement Systems <i>Low Altitude (AMS)</i>	SO-42	Rotorcraft turbine-twin engine	2.5 hours plus VFR Reserves	Capable of Instrument flight within the NAS-SL-12,500 MSL (Conduct operations IMC and VMC)	No	4 hours	1750 pounds equipment and 3 personnel	See below.
Aerial survey				Modifications to airframe and electrical system required to accommodate sensors.				
Emergency Response (SO-42) Aerial Measurement Systems <i>Medium Altitude (AMS)</i>	SO-42	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	4 hours plus IFR Reserves 3 hours plus IFR Reserves	Capable of Instrument flight within the NAS-SL-25,000 MSL (Conduct operations IMC and VMC)	Yes	4 hours	1750 pounds equipment and 3 personnel	See below.
Aerial survey				Modifications to airframe and electrical system required to accommodate sensors.				
Emergency Response (SO-42) Aerial Measurement Systems	SO-42	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized	4 hours plus IFR Reserves 3 hours plus IFR Reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL (Conduct operations IMC and VMC)	Yes	4 hours	1750 pounds equipment and 3 personnel	150 hrs.
Aerial survey/photography				Modifications to airframe and electrical system required to accommodate sensors.				
Aerial Measurement Systems (AMS)	SO-42	Fixed wing turbo-jet or multi-engine turbo-prop, pressurized or Rotorcraft turbine-twin	4 hours plus IFR Reserves 3 hours plus IFR Reserves 2.5 hours plus VFR Reserves	Capable of Instrument flight within the NAS-SL-40,000 MSL (Conduct operations VMC)	Yes for fixed wing No for Rotorcraft	No scheduled events.	1750 pounds equipment and 3 personnel	50 hrs.
Research and development (sensors)				Modifications to airframe and electrical system required to accommodate sensors.				

CUSTOMER REQUIREMENTS: SO-42 has a Memorandum of Agreement with the DoD for all OCONUS operations.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: Energy Resources

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Strategic Petroleum Reserve Operations (SPRO), Aviation Program Manager, Robert Kahl

DOE

PROGRAM (s): **Energy Resources:** The Office of Energy Efficiency and Renewable Energy (EERE) develops and deploys efficient and clean energy technologies that meet our nation's energy needs, enhance our environment, and strengthen our national competitiveness. The results of our programs are dramatic—from a more efficient U.S. industrial base to a growing clean energy technology industry; from tremendous energy savings in homes, offices, and government buildings to a car of the next decade with triple the fuel economy of today's sedan.

OFFICE

PROGRAM(s): In managing the Strategic Petroleum Reserve Program, the Office of Fossil Energy's overriding objective is to maintain the readiness of the oil stockpile for emergency use at the President's direction.

Currently, the Department of Energy's top priority is to ensure the continued readiness of the Reserve through at least the year 2025. This major life-extension program includes replacing or refurbishing pumps, piping and other key components at the SPR's Gulf Coast sites.

AREA OF

OPERATIONS: States of Louisiana and Texas.

SURVEY RESULTS:

SPRO uses contractor owned and operated aircraft in direct support of its overall program. Under the Transportation Regulations, Title 49 CFR, it is a requirement for entities transporting oil to ensure the integrity of its pipelines during oil shipments. Small single engine fixed-wing aircraft are used for pipeline inspection during oil transfers among the holding caverns. The fixed-wing aircraft operator charges SPRO \$1.63 per mile rather than conventional per flight hour charges. This allows SPRO to better control the cost of this vital service. The use of small fixed wing aircraft have proven to be the most effective method in patrolling the pipelines for this program. In addition, many areas where the SPRO pipelines are routed prevents conventional methods of inspection due to swamps and other hazards.

SPRO utilizes contractor owned and operated Rotorcraft aircraft to support the maintenance of pumping stations by transporting crews and equipment to inaccessible sites. Rotary-wing aircraft are also used for emergency medical evacuations from the remote work sites that make up the SPRO facilities. The aircraft are justified, costs

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

appear to be fair and reasonable, and the service is satisfactory to support the SPRO programs.

SUGGESTIONS:

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Strategic Petroleum Reserve Operations

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Maintenance and mission related travel to SPRO facilities	ER SPRO	Rotorcraft single engine turbine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SI-12,500 MSL	Yes	None, scheduled events.	810 pounds	10 hrs.
Transportation of personnel and cargo				Wire strike kit installation, GPS, infrared camera mount and wiring, cargo hook, and company radios.				
Medical evacuation from remote sites	ER SPRO	Rotorcraft single engine turbine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SI-12,500 MSL	No	None, scheduled events.	880 pounds	0 hrs.
Transportation of personnel and cargo				Medical response capabilities.				
Pipeline inspection and maintenance	ER SPRO	Fixed wing single engine piston	3.0 hours plus VFR reserves	Capable of navigation within NAS-SI - 12,500 MSL (Conduct of operations VMC)	No	None, scheduled events.	250 pounds	150 hrs.
Aerial patrol				Radios capable of reporting to SPRO personnel position reports.				

Other Customer Requirements:

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: Environmental Quality

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Savannah River Site (SRS), Aviation Manager, Steven Shelt
SRS, Aviation Safety Officer, David Boyll
SRS, RAP Response Coordinator, Christina Edwards
SRS-Wakenhut Services, Inc. (SRS-WSI), SRS Site Director, Special Operations, Ernie Tussey,
SRS-WSI, Manager Aviation Operations, Jeff Snow

DOE

PROGRAM(s): **Environmental Management:** The mission of the Office of Nuclear Material and Facility Stabilization program is to stabilize nuclear materials and spent nuclear fuel and prepare them for eventual disposal in a manner that protects people and the environment. This office has another mission; to deactivate excess contaminated facilities in a timely manner to reduce risk associated with maintaining aged facilities and to reduce out-year mortgages. In addition, this office has site coordination responsibilities for Savannah River and Rocky Flats, and the responsibility for K-Basins and the Plutonium Finishing Plant at Richland.

Site and Facilities security: To prevent the theft of nuclear materials and have the capability to search, contain and apprehend. Support a core program of nuclear nonproliferation activities.

Emergency Response: The Department of Energy has important national security responsibilities. The DOE has the world's leading scientists, engineers and technicians from over 50 years of managing the nation's nuclear weapons program. When the need arises, DOE is prepared to respond immediately to any type of radiological accident or incident anywhere in the world with seven radiological emergency response assets.

OFFICE

PROGRAM(s): The Savannah River Site's program serves the National interest by ensuring that programs, operations, and resources are managed in a safe, open and cost-effective manner to:

- support current and future national security requirements,
- reduce the global nuclear proliferation danger,
- protect and restore the environment while managing waste and nuclear materials, and
- conduct mission-supportive research and technology development.

AREA OF

OPERATIONS: CONUS and OCONUS

COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE OPERATIONS OFFICE SUMMARY

SURVEY RESULTS:

At the program level, EM identified a need for security helicopters at the SRS in support of the national security mission to prevent the unauthorized removal of special nuclear materials from the site. The SRS program was validated by the classified Site Safeguards and Security Plan. In addition to the security program, when available, the second helicopter is used in non-security site activities. These additional activities have been identified by the U.S. Forest Service and the Savannah River Ecology Laboratory in support of environmental management programs.

The SRS also has an aviation requirement to support the Region 3 Radiological Assistance Program (RAP) program. Charter, commercial, or DoD aircraft are used to transport the RAP team as required.

The SRS uses the BK-117 helicopter for site support. Although the BK-117 is a twin engine helicopter, it does not have the capability to carry a full fuel load and in addition to all of the personnel and equipment necessary to meet optimum program requirements. Fuel load is thus reduced to meet weight requirements, resulting in abbreviated flight endurance which could affect program's performance. The CAPS Phase One Team noted there was a need for a more powerful aircraft to achieve optimum mission weight and endurance requirements.

SUGGESTIONS:

The Office of Aviation Management, in collaboration with the program office, NVO, and the SRS Operations Office should conduct a fleet modernization study to determine the feasibility of standardizing the Rotorcraft fleet. Cost savings and economies of aviation assets may be realized if a standardized helicopter fleet could be adopted. A replacement for the SRS BK-117 helicopters with ones that could meet optimum program requirements for weight and endurance should be explored as part of this cost analysis.

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Savannah River Site

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From notification to Departure Point	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Tactical transport and insertion of security response forces, intelligence gathering, and aerial firing platform. Assistance to local law enforcement.	EM	Rotorcraft, twin engine, turbine	2.5 hours plus VFR reserve	Capable of navigating in the NAS SL to 12,000 MSL (Below 1000 feet AGL over the Savannah River Site.)	No	Yes (Classified - See the SSSP.)	1,500 pounds 5 person SRT plus equipment	701 hrs.
Aerial security patrol				Airframe and/or electrical modifications for FLIR system, weapons mount, and night sun.				
Aerial wildland fire suppression	U.S. Forest Service	Rotorcraft, twin engine, turbine	2.5 hours plus VFR reserve.	Capable of navigating in the NAS SL to 12,000 MSL (Below 1000 feet AGL over the Savannah River Site.)	No	No	1,800 pounds External load	74 hrs.
External load				Airframe and/or electrical modifications for FLIR system, external load and aerial ignition dispenser.				
Downwind emergency notification; evacuation of critically injured.	EM	Rotorcraft, twin engine, turbine	2.5 hours plus VFR reserve	Capable of navigating in the NAS SL to 12,000 MSL (Below 1000 feet AGL over the Savannah River Site and surrounding area.)	No	No	440 pounds 2 personnel plus equipment	None planned.
Transportation of personnel and cargo				None.				
Environmental and engineering - photographic documentation.	EM	Rotorcraft, twin engine, turbine	2.5 hours plus VFR reserve	Capable of navigating in the NAS SL to 12,000 MSL (Below 1000 feet AGL over the Savannah River Site.)	No	No	220 pounds 1 photographer and equipment	Hours for this activity are included in the security program as part of the training flights.
Aerial photography				None.				
Wildlife counts, ecology studies, and wildland fire detection.	EM	Rotorcraft, twin engine, turbine	2.5 hours plus VFR reserve	Capable of navigating in the NAS SL to 12,000 MSL (Below 1000 feet AGL over the Savannah River Site.)	No	No	220 pounds 1 observer plus equipment	Hours for this activity are included in the security program as part of the training flights.
Aerial surveys				None.				
Wildlife counts and ecology studies	EM	Fixed wing, single engine, piston	2.5 hours plus VFR reserves	Capable of navigating in the NAS SL to 12,000 MSL (Below 1000 feet AGL over the Savannah River Site.)	No	No	220 pounds 1 observer plus equipment	11 hrs.
Aerial surveys		Charter aircraft when DOE helicopter is unavailable		None.				

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Savannah River Site

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Movement of RAP Team and equipment	DP	Fixed wing, Twin engine, Turboprop. DoD aircraft will be used for OCONUS support.	4 hours plus IFR reserves.	Capable of instrument flight within the NAS, SL to 35,000 MSL.	Yes	Yes - 2 hours from notification to departure.	1,875 pounds 7 personnel plus 125 pounds of equipment	12 hrs.
Transportation of personnel and cargo				None				

OTHER SPECIAL REQUIREMENTS: Aircrew will NEED Q-clearances.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: Energy Resources

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Southwest Power Administration (SWPA), Aviation Program Manager, Darlene Low

DOE

PROGRAM (s): **Energy Resources:** The Office of Energy Efficiency and Renewable Energy (EERE) develops and deploys efficient and clean energy technologies that meet our nation's energy needs, enhance our environment, and strengthen our national competitiveness. The results of our programs are dramatic—from a more efficient U.S. industrial base to a growing clean energy technology industry; from tremendous energy savings in homes, offices, and government buildings to a car of the next decade with triple the fuel economy of today's sedan.

OFFICE

PROGRAM(s): Southwestern Power Administration (Southwestern), headquartered in Tulsa, Oklahoma, is an agency of the Department of Energy. Southwestern was established by Section 5 of the Flood Control Act of 1944 and is responsible for marketing the hydroelectric power produced at 24 Corps of Engineers multipurpose dams located in Arkansas, Missouri, Oklahoma, and Texas. By law, the power and associated energy are marketed to publicly held entities such as rural electric cooperatives, municipal utilities, and military installations. Southwestern has nearly one hundred such "preference" customers located in Arkansas, Kansas, Louisiana, Missouri, Oklahoma, and Texas which ultimately serve nearly 7 million people and businesses.

Southwestern operates and maintains 1,380 miles of high-voltage transmission lines, 24 substations, and 46 microwave and VHF radio sites from field offices in Gore and Tupelo, Oklahoma; Springfield, Missouri; and Jonesboro, Arkansas. Around-the-clock power scheduling and dispatching is conducted from the Springfield Operations Center in Springfield, Missouri.

AREA OF

OPERATIONS: States of Arkansas, Missouri, and Oklahoma.

SURVEY RESULTS:

SWPA uses contractor owned and operated aircraft in direct support of its overall program of supplying reliable, safe, and cost effective electrical power. Rotorcraft aircraft are used for transmission line inspection only. Maintenance, repair, and construction are supported by ground modes of transportation. SWPA can rely more heavily on ground transportation than its counterparts such as Bonneville Power Administration and Western Area Power Administration, due to adequate road accessibility to its transmission lines. The use of Rotorcraft aircraft have proven to be the most cost effective method for performing line patrol.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

SUGGESTIONS:

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

CUSTOMER REQUIREMENTS: Southwest Power Administration

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Powerline inspection and maintenance	SWPA	Rotorcraft single engine turbine, 6500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL (Rotorcraft) (Conduct of operations VMC)	No	None, scheduled events.	270 pounds	70 hrs.
Aerial patrol				Wire strike kit installation, GPS, infrared camera mount and wiring, cargo hook, and company radios.				

Other Customer Requirements: None

**COMPREHENSIVE AVIATION PROGRAM STUDY PHASE ONE
OPERATIONS OFFICE SUMMARY**

LEAD PROGRAM SECRETARIAL OFFICE: Energy Resources

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Western Area Power Administration (WAPA), Aviation Program Manager, Bruce Hunt

DOE

PROGRAM(s): **Energy Resources:** The Office of Energy Efficiency and Renewable Energy (EERE) develops and deploys efficient and clean energy technologies that meet our nation's energy needs, enhance our environment, and strengthen our national competitiveness. The results of our programs are dramatic—from a more efficient U.S. industrial base to a growing clean energy technology industry; from tremendous energy savings in homes, offices, and government buildings to a car of the next decade with triple the fuel economy of today's sedan.

OFFICE

PROGRAM(s): Western Area Power Administration markets and transmits reliable, low-cost electric power, provides related services and encourages energy efficient management in an environmentally sound manner. Hydroelectric power is marketed from 55 powerplants operated by the Bureau of Reclamation, the U.S. Army Corps of Engineers and the International Boundary and Water Commission. Additionally, Western markets the United States' 24.3 percent entitlement (547 megawatts) from the coal-fired Navajo Generating Station near Page, Arizona. Current maximum operating capability is 10,605 megawatts. Western's service area covers 3.38 million square kilometers (1.3 million square miles). Western's wholesale power customers provide service to millions of consumers in 15 western states (Arizona, California, Colorado, Iowa, Kansas, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, South Dakota, Texas, Utah and Wyoming). In addition to the Corporate Services Office in Golden, Western operates and maintains the transmission system from its four regional offices in Billings, Mont.; Phoenix, Ariz.; Loveland, Colo.; and Folsom, Calif. Power is marketed from these regions and our Customer Service Center in Salt Lake City, Utah.

AREA OF

OPERATIONS: States of Arizona, California, Colorado, Iowa, Kansas, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, South Dakota, Texas, Utah and Wyoming.

SURVEY RESULTS:

WAPA uses government-owned and-operated aircraft, along with commercially owned and operated aircraft, in direct support of its overall program of supplying reliable, safe, and cost effective electrical power. Government-owned Rotorcraft aircraft are used for transmission line inspection, maintenance, repair, transportation, and construction. The use of Rotorcraft aircraft have proven to be the most cost effective method. The WAPA OMB A-76 study which was completed in 1998 and

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approved in 1999, clearly indicates the Rotorcraft aircraft save time and money. The approved OMB A-76 cost analysis proves that Western's aircraft are necessary in accomplishing WAPA's core program and reduces WAPA's administrative cost.

The use of commercially owned and operated fixed wing aircraft in support of WAPA's program and official travel needs are justified through the OMB Circular A-126 processes. The CAPS Phase One Team determined the use and cost of these vendors appear to be fair and reasonable.

SUGGESTIONS:

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

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CUSTOMER REQUIREMENTS: Western Area Power Administration

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Official Travel and travel related to WAPA activities	WAPA	Fixed wing multi-engine turbo-prop, pressurized	3 hours plus IFR reserves	Capable of Instrument flight within the NAS-SL-35,000 MSL	Yes	None, scheduled events.	1,760 pounds	107 hrs.
Transportation of personnel and cargo				None.			8 personnel	
Official Travel and travel related to WAPA activities	WAPA	Rotorcraft single engine turbine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SL-12,500 MSL	No	None, scheduled events.	880 pounds	216 hrs.
Transportation of personnel and cargo				None.			4 personnel	
Powerline inspection and maintenance	WAPA	Rotorcraft single engine turbine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL [Rotorcraft] (Conduct of operations VMC)	No	None, scheduled events. * Crews are available for emergency patrols in the event of power outages	1,500 pounds	1,579 hrs.
Aerial patrol				Wire strike kit installation, GPS, infrared camera mount and wiring, cargo hook, and company radios.			50 pounds equipment and 1 personnel	
Infrared photography powerline system inspection and maintenance.	WAPA	Rotorcraft single engine turbine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within NAS-SL - 12,500 MSL [Rotorcraft] (Conduct of operations VMC)	No	None, scheduled events.	1,500 pounds	216 hrs.
Aerial photography				Wire strike kit installation, GPS, infrared camera mount and wiring, cargo hook, and company radios.			100 pounds equipment and 1 personnel	
Powerline maintenance and repair.	WAPA	Rotorcraft single engine turbine, 6,500 pounds GW or less	2.0 hours plus VFR reserves	Capable of navigation within the NAS-SL-12,500 MSL Conduct of operations VMC	No	None, scheduled events.	1,500 pounds	45 hrs.
External load				Wire strike kit installation, GPS, infrared camera mount and wiring, cargo hook, and company radios. Conduct of operations under 14 CFR Part 133.			1,500 pounds of cargo	

Other Customer Requirements:

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LEAD PROGRAM SECRETARIAL OFFICE: Environmental Quality

CUSTOMER(S) IDENTIFIED BY REPORTING OFFICE(S):

Yucca Mountain Site Characterization Project (YMSCP), Site Management Division, Russell Baumeister

DOE

PROGRAM (s): **Environmental Quality:** The Nuclear Waste Policy Act of 1982 established the Office of Civilian Radioactive Waste Management (OCRWM) within the U.S. Department of Energy (DOE) to develop and manage a Federal system for disposing of all spent nuclear fuel from commercial nuclear reactors and high-level radioactive waste resulting from atomic energy defense activities. The statute provides detailed direction for the scientific, technical, and institutional development of the system, and it requires that waste management facilities be licensed by the U.S. Nuclear Regulatory Commission (NRC).

OFFICE

PROGRAM(s): The U.S. Department of Energy is studying Yucca Mountain, Nevada, to determine if it's a suitable place to build a geologic repository for the nation's commercial and defense spent nuclear fuel and high-level radioactive waste.

AREA OF

OPERATIONS: Nevada.

SURVEY RESULTS:

YMSCP uses aircraft in direct support of its overall program of studying the Yucca Mountain site and associated construction activity. In addition, many Congressional, State, and other key officials must visit the remote site. The use of small turbine Rotorcraft aircraft have proven to be the most efficient means of supporting this program and it appears the cost are fair and reasonable.

SUGGESTIONS:

It is essential for this customer to work with the Office of Aviation Management in establishing an Internet-based, Nation-wide, on-demand, approved charter aircraft vendor list.

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CUSTOMER REQUIREMENTS: Yucca Mountain Site Characterization Project

MISSION	Program Office or End Customer	TYPE OF AIRCRAFT	ENDURANCE To Meet Program Requirements	FLIGHT ENVIRONMENT (predominant)	FLIGHT INTO KNOWN or FORECAST ICING	RESPONSE TIME From Notification to Departure	PAYLOAD	UTILIZATION (FLIGHT HOURS)
TYPE OF FLIGHT OPERATION				SPECIAL REQUIREMENTS				
Official and mission related to Yucca Mountain Site	EQ YMSCP	Rotorcraft single engine turbine, 6,500 pounds GW	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SL-12,500 MSL	No	None, scheduled events.	880 pounds	5 hrs.
Transportation of personnel and cargo				None.			4 personnel	
Aerial Photography documenting site construction.	EQ YMSCP	Rotorcraft single engine turbine, 6,500 pounds GW or less	2.5 hours plus VFR reserves	Capable of navigation within the NAS-SL-12,500 MSL	No	None, scheduled events.	250 pounds	1 hr.
Aerial photography				None.			1 personnel	

Other Customer Requirements: